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OUR OBSTETRIC AND GYNECOLOGIC RESPONSIBILITIES *

GEORGE GRAY WARD, M.D.
NEW YORK

The specialty of obstetrics and gynecology—it will be noted that I speak of "the specialty," not the "specialties"—is composed of two parts, which are so related and interwoven that they cannot be divorced without disadvantage to both. This specialty comprises the study of the physiology and pathology of the reproductive system of woman, and as such should be considered in toto.

As one of the most important sections of this great association representing one of the fundamental departments of medicine, we must appreciate the responsibilities which rest on us when we realize that obstetrics is the general practitioner's specialty, and that with the possible exception of pediatrics, there is no one of the special departments of our profession which concerns him so greatly and which touches so vitally the welfare of the community.

What may be said here is broadcast to the general medical public and is rightfully regarded as authoritative, and consequently will mold the opinions and guide the trend of obstetric practice for the good or ill of womankind. It must always be that the great bulk of obstetrics will be done by the general practitioner, and the measure of mortality and morbidity of the childbearing women of the community will be in direct proportion to the sound obstetrics that he practices.

That there is a great need of propaganda to awaken the profession to the fact that obstetrics, as generally practiced at the present, is wofully below the standard that maternity hospital statistics show is demonstrated by a recent study made of the maternal mortality in Massachusetts during 1922 and 1923, wherein 984 deaths in the puerperal state have been analyzed by the Division of Hygiene of the Massachusetts Department of Public Health.[1]

This analysis shows the appalling facts that septicemia, toxemia and hemorrhage, causes of maternal mortality that are generally preventable, were the responsible factors in 58 per cent of the deaths. There was a lack of proper prenatal care in 89 per cent of the cases, and a clear impression was gained that the factor of operative intervention had a marked influence on the total of unfavorable results. Operative procedures were resorted to in 591 of the 984 cases. More than 22.5 per cent died of puerperal infection (nearly one fourth), yet we are living in the age of aseptic surgery. It would almost appear as though Holmes and Semmelweiss, in pointing out the cause of puerperal fever, and Lister, in showing us the remedy, had labored in vain. Twenty-two per cent died of toxemia, a preventable disease and an indication of a lack of or inadequate prenatal care. In these 984 maternal deaths, 430 of the infants were lost.

Polak states that in New York, in 1920, there was one maternal death in every 205, one baby dead out of every twenty-one, and that 61 per cent of gynecologic surgery is the result of poor obstetrics. The fault must lie in inadequate and improper obstetric teaching, or must be due to criminal carelessness, the result of a lack of a surgical conscience, or both. The fact that there is a tendency for a steady decline in the birth rate only adds to the seriousness of the situation. The birth rate for England and Wales in 1925 is the lowest recorded (excepting the war years of 1917 and 1918), and has been steadily falling from 22.4 per thousand in 1921 to 18.3 in 1925, and the rate in the United States is also declining.

It is meet, then, that we should arise to the urgent necessity of sounding an alarm to awaken the man who comes most closely in touch with the life of the people to a sense of his shortcomings, and to spur ourselves as teachers to a realization that our instruction is inadequate and may be deficient in conservatism. The fact that some expert obstetricians can more or less safely hasten labor by operative intervention, thus saving themselves time and shortening the patient's immediate ordeal, together with our national tendency to hurry in the rush incident to competitive practice, has been the cause of the general practitioner and many so-called specialists drifting away from the well proved if circuitous lanes of safety to those dangerous short cuts which too often lead to disastrous results for both mother and child.

He who attempts to make nature deviate from her normal physiologic processes must remember that, while he may accomplish his immediate object, it is very apt to be at an exorbitant price.

Patience is a better obstetrician, in the majority of cases, than dexterity.

Haste is not compatible with thoroughness in the practice of medicine and tends toward developing a commercial aspect instead of a scientific one. Osler, in one of his addresses, pities the "forty visit a day man" and councils the prayer against the evils of prosperity, lest he tend toward slovenliness in his methods of work, and quotes:

> Now sickening Physick hangs her pensive head
> And what was once a Science now's a Trade.

Polak and Lynch, as chairmen of this section, have called attention to the lack of clinical facilities in

* Chairman's address, read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Coffin, Susan M.; DeKruif, Mary F.; Southard, Mable A., and Hamblen, Angeline D.: Maternal Mortality in Massachusetts, J. A. M. A. 86: 408 (Feb. 6) 1926.

obstetric teaching in the majority of our schools, and have pointed out the tendency to ignore physiologic laws and to resort to surgery. That there has been but little improvement in the matter is my reason for bringing up the subject again.

Williams [2] has deplored the lack of productiveness in research by American obstetricians. This sterility is not entirely the fault of the teachers themselves, but is in great part due to the lack of appreciation by many educational authorities of the importance of obstetrics as one of the fundamental branches of medicine, and that proper provision is not made for a fully equipped department of sufficient size to allow of abundant clinical opportunities for teaching. In most of our schools, obstetrics is the least cared for department. Is it any wonder that obstetric research is dormant under such circumstances?

The union of obstetrics and gynecology is essential if we are to expect better obstetric research, as the physiology and pathology of the reproductive system of woman must be considered as a whole if we are to solve successfully the problems that are so interwoven with both sciences. The intimate relation between obstetrics and gynecology that exists in European clinics has, unfortunately for both branches of the specialty, not found universal application in this country. Gynecology in its beginnings was largely reparative and therefore surgical, and its tendency was to develop independently for this reason. But in recent years there has been an awakening to an appreciation of the broader gynecology, which comprises all phases of the reproductive function and of which surgical therapy is only a part.

The important problem of sterility requires an intensive study of the physiologic processes of reproduction as well as the pathologic changes due to disease. Greater attention has been recently paid to the physiology of the female reproductive system, and more detailed studies have been made in this direction. The work of Rubin and others in the determination of the patency of the tubes, the study of the processes of ovulation by Stockard and Papanicolaou, the research being carried out on the ovarian hormones by numerous observers, all have important bearing on obstetric problems, and are only an index of the changing attitude toward a closer association of the gynecologist and the obstetrician as their problems prove to be intermingled. In preventive obstetric measures lie the means of avoiding many gynecologic lesions. If the general practitioner will only do his full duty toward his obstetric patients, more than half of the work that is now done by the gynecologist will not be necessary. This will require the earnest attention of the obstetrician not only during the labor but also in the antenatal and postnatal periods. The care of the pregnant woman before labor has been accorded increasing attention in the United States, and constitutes a contribution to our science for which we may justly claim credit. This development has rendered necessary resort to lay organizations for financial aid and support, and has awakened an interest which, if properly directed, will do much to increase the dignity of obstetric practice. It is important, however, that a proper balance be maintained, so that the lay interest will not dominate the medical interest. The passage of the Sheppard-Towner act at Washington five years ago and its recent extension have awakened the interest of the entire country on the important problem of maternal welfare. Federal participation would probably be better limited to an advisory capacity only, with the individual states each assuming its responsibility for carrying on its own welfare program.

The advent of the nurse specially trained for obstetric work is a result of the increasing demands made by proper prenatal care, as such competent assistance is needed to carry out the work that physicians can only supervise. This training of the obstetric nurse should be given serious consideration. This is about to be done by the special committee on maternal welfare of the associated national societies interested in obstetrics and gynecology.

We would plead for more attention being directed toward adequate postnatal care and an obstetric follow-up. We must not forget that while we hear much about prenatal work, postnatal care is also of importance as a factor in gynecologic prophylaxis.

The gynecology of today has undergone a great expansive change from the gynecology of yesterday, which was largely confined to the narrow field of operative technic. This broader development which has taken place is largely the result of the application of the fundamental principles of physics and chemistry in the study of life processes, and through the sciences of biology, biochemistry and genetics, a better appreciation has been brought about of the intimate relations existing between the reproductive organs and the body as a whole. We are learning to heed the admonition of Plato in the Charmides, that the whole must be studied also, "for the part can never be well unless the whole is well."

There is apt to be overspecialization in all specialties, with a tendency to ignore the outside relations to the problem in hand. The general sugeon and the internist are also frequently at fault in slurring over the gynecologic condition of their patients, although the ovarian function may enter as an important factor in many general problems of disease. While we preach that the gynecologist should look afield generally, we must also urge that the general surgeon and internist should look locally.

As the study of medicine has now become a study of biologic science, our hope for future progress in the specialty must lie in part in that direction. Our present knowledge of the cellular metabolism that is constantly taking place in the blood and the vessels, in the nerve centers and individual cells, and in the endocrine glands during the phenomena of menstruation, ovulation, conception and pregnancy, is very superficial. The physiologic chemist and the biologist must work hand in hand with the clinician in both the operating room and the laboratory to this end. It is essential that we should first know the normal processes of nature in order to be able to cope with abnormal changes. A better knowledge of the physiology of the reproductive system, of which we know very little at present, must be our immediate goal.

Our progress, however, does not rest entirely on biochemical research. A tremendous improvement in our ultimate results is easily possible and within our immediate reach, when we learn to apply the principles of organization and a common sense audit to our daily work. Organization implies system, and system is essential if we are to attain a uniform degree of accuracy in diagnosis. Science is essentially a matter of observation, and our observations, whether clinical at the bedside or in the laboratory, must of necessity be precisely and completely recorded if they are to be of

2. Williams: Tr. Am. Gynec. Soc., 1914.

value for comparative study and deductive reasoning. The day of "snap opinions" as to our end-results not backed up by recorded facts is slowly giving way to the carefully analyzed observations that are becoming more generally available as a result of the better hospital organization which is everywhere apparent. Many of our accepted ideas as to our postoperative morbidity are founded on tradition. These views will be materially changed in many instances when submitted to careful statistical study. Organization means a more accurate diagnosis, and a correct diagnosis is essential for a cure and will often prevent unnecessary surgery. This takes time. There is no short road. The careful history, the complete physical examination, the laboratory check up, coupled with whatever advice with consultants is indicated—in other words, careful preoperative study and preoperative preparation—is, after all, the least that we can do to safeguard the interests of those who place their lives and well being in our hands. This should be considered as the ordinary care that the patient is entitled to expect.

To Codman belongs the credit of awakening us to the need of end-result study if we are to appreciate in true proportion our successes and failures; but a real audit and study of our hospital records is as yet only sporadic, and is not universal as it should be.

The mortality and morbidity results of a hospital staff and the percentage of successes, partial successes and failures of certain lines of treatment are of the utmost importance in influencing the trend of our practice, and therefore the health of the community. On the reliability and completeness of our records, the value of these percentages must depend. For instance, in abdominal surgery the study of the healing of our wounds is of economic importance to both the hospital and the patient as having a direct bearing on the duration of the convalescence. Probably no other postoperative complication which the abdominal surgeon encounters is as generally responsible for a loss of time as that caused by faulty union, of even a minor degree.

CLASSIFICATION OF WOUND HEALING

A recent survey made after several years' experience with an idealistic classification of wound healing, which we employed at the Woman's Hospital, has proved that it was not practical, was too laborious for the staff to carry out with the best of intentions, and did not readily permit of comparative study with other clinics. Consequently, we have discarded it and have adopted the following classification, which may be of interest as an illustration of a postoperative audit:

The classification has been based on the principle that defective wound healing is dependent on either infection (sepsis) or faulty technic, and with the idea of enabling the ready comparison of percentages of infection with other clinics. For our own information we record the minor defects, the result of faulty technic not due to infection. All sutured operation wounds are designated by the surgeon at the time of operation as "clean" or "contaminated" in accordance with whether they have been exposed to infection from within or without, irrespective of whether drainage is used or not. At the time of the patient's discharge, the surgeon records on the record form the healing of the wound according to the following classification:

Class A: Wounds that heal in an ideal manner without defect.

Class B: Wounds that heal aseptically but with minor defects, the result of faulty technic, as eversion of wound edges, stitch or fat necrosis, hematoma, breaking and retention of nonabsorbable sutures, or exudates of serum, blood or serosanguineous fluid without the signs of inflammation.

Class C: Wounds that have the clinical signs of inflammation and infection, including wide separation of tissues from any cause necessitating granulation (potentially infected wounds), and persistent sinuses.

1. Minor: Small local infections, in which the healing of the wound is not materially delayed.
2. Major: Any infection greater than the minor classification, and gross defects and sinuses.

This classification applies to both drainage and nondrainage cases.

The record department files index cards of all cases of infection and faulty union in the clean and contaminated groups for each surgeon. The percentage of infections of each operator is thus made available, and the yearly composite percentage of the entire staff is readily determined.

It is the established custom for business corporations to have their financial audit made and certified by chartered accountants. Great improvement in the accuracy and consequently in the scientific value of our hospital records will be accomplished if we have our record departments regularly checked up and our statistical data compiled and charted by the professional statistician. We have already inaugurated this innovation at the Woman's Hospital.

I have said that our present shortcomings in obstetric practice must be due to inadequate teaching or a lack of conscience. As a remedy for the first, I would urge that a survey be made by the Council on Medical Education and Hospitals of the American Medical Association of the facilities offered in obstetrics at the present time by our American medical colleges, with a view toward fostering a well balanced curriculum of theoretical and practical teaching, with particular attention to the relation between obstetrics and gynecology. Such constructive work would do much toward developing a greater respect and attention for this important specialty, and would show the urgent need of better opportunities in this neglected field of medical education.

As to the second cause of our delinquency, what we need today is an awakening of our surgical conscience. Longyear has reminded us that skilful surgeons may not all be conscientious, and conscientious surgeons may not all be skilful. A full appreciation of this can best be brought to our attention by a proper audit of our results. To awaken our conscience, we must be made to appreciate the existing facts by bringing them out into the spotlight—to this end there is no answer but the word "audit." We must audit the morbidity statistics as well as the mortality statistics of our clinics as systematically and accurately as we do our finances—then only shall we see the light that will stimulate us to live up to our obstetric and gynecologic responsibilities.

48 East Fifty-Second Street.

Malpositions of the Child.—An enormous number of women are allowed to drift into labor . . . without any attempt being made to diagnose and correct malpresentations prior to labor. Transverse presentation can always be corrected, even in the later days of pregnancy. A similar procedure should also be followed in breech presentation, a complication not very serious in a multipara, but attended with great difficulty and resulting often in serious injury to the mother and child if the parturient is a primipara. Now, practically all these cases of breech presentation can be recognized in the later weeks of pregnancy, the child turned, and a vertex presentation established.—Kerr, J. M. M.: *Brit. M. J.*, June 12, 1926.

INTESTINAL FLAGELLATE INFESTATION

CLINICAL ANALYSIS *

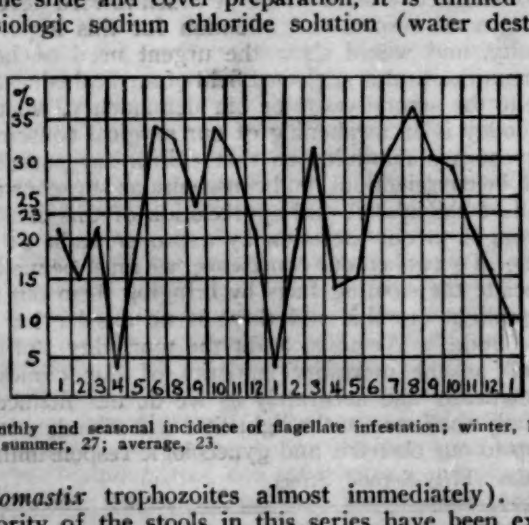
KENNETH M. LYNCH, M.D.
DALLAS, TEXAS

The occurrence of flagellated protozoa in the intestine of man is world-wide and of considerable prevalence. Of recent years there has been considerable attention paid to them as possible causative factors in disease. The organisms have not lent themselves well to thorough experimental investigation, and their common prominence in clinical studies of maladies of obscure origin makes them naturally liable to such suspicion.

The fundamental fault, it seems to me, in previously reported clinical studies of "flagellosis" is the lack of control study. It is recognized that proper scientific control of such studies, which do not lend themselves to experimental confirmation, is most difficult. It is with this in mind that the present study has been conducted. An analysis has been made of 1,040 consecutive clinical cases in which gastro-intestinal studies had a prominent place on account of the symptoms displayed, the study being spread over a period of about four years, the particular purpose being to compare the conditions encountered in those who harbored flagellates with those in the flagellate-free.

STOOL EXAMINATION

Stool examination is conducted as follows: When diarrhea is present, the natural stool is taken; when it is not, a saline purged stool is taken, the examination being done as soon after passage of the stool as possible. I may say that this is not the manner in which amebas should be identified. When they are present without cysts, a positive differentiation is not made until a stool showing the cysts is obtained. Unless the stool is sufficiently liquid to offer clear through and through vision of the slide and cover preparation, it is thinned with physiologic sodium chloride solution (water destroys



Monthly and seasonal incidence of flagellate infestation; winter, 15 per cent; summer, 27; average, 23.

Chilomastix trophozoites almost immediately). The majority of the stools in this series have been examined only once, although when conditions make it possible three different stools are advised. It is recognized, therefore, that some instances of the infestation may have been overlooked. In the light of other well conducted studies, something may therefore be added to my figures of incidence, but not more than about one fourth.

Of the 1,040 patients, 23 per cent harbored flagellates; 12.5 per cent, *Trichomonas hominis;* 7.5 per cent, *Chilomastix mesnili (davainei)*; 2.3 per cent, *Giardia intestinalis,* and 1.5 per cent, *Tricercomonas intestinalis.* There were unidentified flagellates in 1.7 per cent, these being so classified because I myself did not make the stool examination.

SEASONABLE PREVALENCE

In order to determine whether there is a seasonal variation in incidence, I have charted graphically the percentage of occurrence for twenty-four consecutive months (except one in which the data were lost). It is seen on the chart that with one or two exceptions the warm months are above the average (27 per cent incidence) and the cold months below (15 per cent incidence). In this calculation I have used as the cold months December, January, February, March and April, which division some may question unless they know the climate and have the conditions of transmission and establishment of such parasites in mind. For instance, April is not ordinarily a cold month here, nor is November entirely a warm month, but I have so classed them to allow for the establishment of presumably prime conditions for transmission and time for establishment after the winter in the one case and for the opposite purpose in the other. An interchange of them does not materially effect the result.

Relation to Age, Sex, Residence and Pathologic State

	Flagellate-Infested, Per Cent	Flagellate-Free, Per Cent
Males	47	40
Below 40 years of age	43	53
Below 50 years of age	68	83
City residence	71	70
Occult blood in stool	67	71
Achlorhydria	32	19
Hyperchlorhydria	10	25
Diarrhea	9	8
Constipation	57	55
Colitis	6	11
Peptic ulcer	0	10
Chronic cholecystitis	38	22
Chronic appendicitis	22	25

PLACE OF RESIDENCE

A tabulation of place of residence of all cases has been made in order to determine whether the incidence of these parasites bears a relation to living under or away from modern sanitary conditions. City residence is used to indicate where such sanitary facilities are available and country residence where this is not the case. Practically all are from north Texas, within a radius of some 200 miles of Dallas. Seventy-one per cent of the flagellate-infested patients and 70 per cent of the flagellate-free lived in the city. Of course, one cannot say that any city dweller did not pick up his flagellates when away from his home conveniences or that the country dweller got his at home; but it appears that either is as subject to the infection as the other.

RELATION OF AGE AND SEX TO INCIDENCE

Of the parasitized patients 47 per cent were males, while 40 per cent of the free were males, perhaps indicating that men may be a bit more exposed to the infection than women, although the difference is not great enough to make a point of. Smithies [1] records that in his study of 265 patients harboring intestinal protozoa, 172 were males and ninety-three were females.

* From the Dallas Medical and Surgical Clinic.
* Read before the Section on Gastro-Enterology and Proctology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Smithies, Frank: Protoziasis Occurring in Temperate Zone Residents, Am. J. Trop. Med. 6:1 (Jan.) 1926.

Forty-three per cent of the flagellate-infested patients were below 40 years of age, and 68 per cent were below 50, while in the flagellate-free group 53 per cent were below 40 and 83 per cent below 50. The difference here is distinct; undoubtedly the later years of life increase the liability. This may be simply the accumulation of time, but it seems to bear a relation to certain other conditions which are apt to be more intimate with later life.

GASTRIC ACIDITY

One of these seemingly related states refers to the condition of the acid secretion of the stomach. One or more gastric analyses were done on the majority of both groups, including a fasting analysis and again after an Ewald meal. For the purposes of this study, three conditions are tabulated: anacidity when no free hydrochloric acid occurred; hyperacidity when the hydrochloric acid was above 50 degrees; while all the region between these two states is taken as normal ground, in view of the difference of opinion in these matters, as I did not care to make more than a very broad distinction for the purpose in view. Thirty-two per cent of the parasitized patients showed no free hydrochloric acid, while this condition was present in 19 per cent of the free. On the other hand, 25 per cent of the flagellate-free showed hyperchlorhydria, while this was the case in but 10 per cent of the flagellate-infested. The remainder, 57 per cent of the parasitized and 56 per cent of the free, in round numbers, were in the "normal" region. Does this higher incidence of hyperchlorhydria in the flagellate-free and of achlorhydria in the parasitized mean that flagellates are etiologic factors in pathologic states which lead to decrease in acid secretion in the stomach, or does the lowering of the acid barrier explain the higher incidence of the flagellates?

In my hands, *Trichomonas hominis* was destroyed experimentally by 0.1 per cent hydrochloric acid in tap water within one hour's time, while the same acid in 0.9 per cent sodium chloride solution reduced them to very few, and 0.2 per cent acid in sodium chloride solution destroyed them. *Giardia* trophozoites were killed by 0.1 per cent acid in 0.9 per cent sodium chloride solution in a few minutes, while *Chilomastix* trophozoites succumbed about as did *Trichomonas,* except that they would not stand exposure to water at all. Of course, the last two have encysted phases in which they must be more resistant. High normal and excess acid values will undoubtedly interfere with the passage of flagellates in the active stage through the stomach, while they may pass readily when the acid is low or absent. In view of this and the supporting evidence to be obtained from the finding of higher flagellate incidence in later life, when achlorhydria or low acid values are more prominent, as well as in certain clinical syndromes to be presently noted, it appears that lowered gastric acidity is a cause rather than a result of flagellate infestation.

PEPTIC ULCER

Gastric and duodenal ulcers are conditions in which hyperchlorhydria is common. They are also more related to early life as contrasted, for instance, to chronic cholecystitis. The sharp difference in the occurrence of a clinical diagnosis of peptic ulcer, 10 per cent in the flagellate-free group against none in the parasitized, furnishes support to the previous opinion in reference to the relation between flagellates and gastric acid. It would, indeed, be a flight of imagination to entertain the thought that flagellates protect against gastric and duodenal ulcers.

CHRONIC CHOLECYSTITIS

Fitting this line of thought comes the comparison between the clinical opinion of chronic cholecystitis in the two groups. This is recorded in 38 per cent of the flagellate-infested group and 22 per cent of the other. Chronic cholecystitis is generally a disease of later life and is commonly accompanied by achlorhydria or low gastric acidity, both of which conditions have here a definite relation to higher flagellate incidence. Chronic cholecystitis is one of the conditions in which a tendency has been noted recently to incriminate intestinal protozoa, and, considered separately, this might be taken as evidence in favor of such a view. Account must also be taken of the fact that 22 per cent of the flagellate-free group have a like condition recorded. It would really seem that on such evidence one might as well attempt to explain the higher incidence of chronic arterial disease in this group.

CHRONIC APPENDICITIS

Perhaps support of this line of thought comes also from the incidence of chronic appendicitis, this being a clinical diagnosis in 22 per cent of the flagellate-infested and in 25 per cent of the flagellate-free. Whatever favor is in these figures is for the flagellate-free group; but one would not care to attach any great importance to a diagnosis that may be so subject to argument.

EVIDENCE OF INTESTINAL DISEASE

Perhaps diarrhea is the condition longest and most commonly ascribed to the flagellates. In this study it takes a comparatively inconspicuous place, there being diarrhea at the time of examination or a history of diarrhea in 9 per cent of the flagellate-infested and in 8 per cent of the flagellate-free. When diarrhea was present there was no gross or microscopic characteristic feature. It was impossible to say that a watery stool or a frothy, gassy stool was distinctive of the presence of flagellates. Constipation was much more prominent but of practically the same ratio in both groups, 57 per cent of the parasitized and 55 per cent of the free. The benzidine test for occult blood in the stool was positive in 67 per cent of the parasitized patients and in 71 per cent of the others. These figures should be considered in only a comparative way because, although proper preparation of the patient for this test was carried out whenever feasible, probably the majority of all had not been sufficiently prepared and both figures are, no doubt, too high.

There is a clinical interpretation of colitis in 6 per cent of the parasitized group and in 11 per cent of the other, this clinical opinion being based usually on roentgen ray and proctoscopic or sigmoidoscopic examination in addition to other signs and symptoms. This, I believe, must be subjected to considerable reservation and should be used only in a comparative way.

From all the data that would seem to bear on the effect of these parasites on their intestinal habitat, there is no evidence of local pathogenicity of the flagellates, or, to put it more literally, there is nothing of such significance that is not just as prominent in the non-parasitized.

BLOOD EXAMINATION

Blood counts and hemoglobin estimations have been done in all cases without revealing any apparent difference in the two groups. There was no case of eosino-

philia in which some known eosinophilia-producing factor, such as uncinariasis or asthma, was not recognized as the cause. Anemia was no more prominent in the parasitized group, and there was no evidence of clinical failure to determine some other plausible cause for any existing anemia. The relative lymphocytosis in a normal or, perhaps, low leukocyte count, which some have been inclined to attribute to intestinal protozoa, is a common occurrence in our study of chronic inflammatory disease, particularly coupled with focal bacterial infection, whether flagellates are present or not.

As for the various nervous system disturbances which I have chosen to indicate by the term "neurasthenia," nothing can be made of any relationship to flagellates in this study.

Arthritis deformans, which Barrow [2] has found in 11 per cent of his protozoal cases and in which he has found 100 per cent intestinal protozoa infestation is conspicuous by its absence in this study, there being no recorded case in the parasitized group. Arthritis deformans is not a common disease in our practice.

SUMMARY

It is planned to continue and to elaborate this study on the same controlled lines as are laid down here and to make further critical analysis of each species concerned. Thus far, considering the intestinal flagellates as a group, I have been unable to incriminate them of pathogenic activity. The reservation which, perhaps, may be made in this study concerns the question of their relation to chronic cholecystitis, although it seems that it becomes a burden to prove that they bear any etiologic relationship to this condition, whereas the ground for the conception that the factors of age and diminished gastric acidity related to it predispose to the presence of these parasites seems fairly clear. The results of the study, thus far obtained, seem to lend little or no support to the growing tendency to incriminate intestinal flagellates as pathogenic agents, but rather to the contrary.

ABSTRACT OF DISCUSSION

DR. ALDO CASTELLANI, New Orleans: The flagellates found in the human intestine are *Trichomonas intestinalis, Chilomastix mesnili* and *Lamblia* or *Giardia intestinalis. Trichomonas intestinalis* and *Chilomastix mesnili* live in the lumen of the intestine, and therefore it is difficult to see how they can be pathogenic unless they are present in enormous numbers. The third parasite, however (*Lamblia, Giardia*), is supplied with a small sucking apparatus by means of which it attaches itself to the epithelium of the intestinal mucosa and actually penetrates the mucosa. Therefore, it is quite possible that when *Lamblia* is present in very large numbers it may give rise to intestinal trouble. The treatment of the intestinal flagellates comes under two heads—diet and drugs. Hegner, three or four years ago, suggested a strictly meat diet, and two or three clinicians have reported good results. On a strictly meat diet the patient becomes constipated, and the flagellates disappear from the stool. But the disappearance of the flagellates is apparently not real; if a dose of salts is given, any number of flagellates are present in the stool the moment the patient has a fluid movement. Drug therapy has been very disappointing. In cases of *Giardia* infection, if the cysts are present in small numbers, I do not give any treatment. If they are present, however, in enormous numbers, when I think they may possibly give rise to some intestinal trouble, I order calomel, 1 grain (0.65 Gm.) at night, or ⅓ grain (0.02 Gm.) three times a day for a week. The second and third week the dose is increased. In certain cases the results are fairly satisfactory.

DR. GEORGE A. GRAY, San Jose, Calif.: The outstanding point in this subject is the absence of definite or characteristic diagnostic symptom in infestations with these organisms. Discussants of the topic of focal infection bring out the point that foci of infection have been removed, but few take into consideration foci of a protozoan nature in the intestinal tract. One of the main symptoms to my mind is that of so-called weakness in the knees. It comes near being a characteristic symptom. Constipation, too, is more commonly present than any other symptom. As a rule, however, I believe that the symptoms are rather in some other place than in the gastro-intestinal tract. As to the treatment, as has been said, it is unsatisfactory in most cases. However, I have been treating *Giardia* infestation with mercurochrome-220 soluble for about three years, and the results have been very good. One must, however, consider the susceptibility of the patient to mercury. There is about 25 per cent metallic mercury in mercurochrome and 85 per cent in calomel. Therefore, mercurochrome is about one third as strong as calomel, as far as its being a laxative. I have obtained negative stools in approximately eleven cases treated with mercurochrome. In two cases *Giardia* was present in large quantities in the bile as obtained by biliary drainage (Lyon-Meltzer method). The mercurochrome could not get at these flagellates in these cases. The stool tests returned positive, and the symptoms persisted after mercurochrome therapy. These were my only failures. I ordinarily started with a ½ grain (0.03 Gm.) tablet enteric-coated at night, for two or three days to make sure that the individual is not susceptible to mercurochrome or hypersensitive to mercury. If no abnormal symptoms ensue, I increase the dosage to ½ grain (0.03 Gm.) or even 1 grain (0.065 Gm.) after each meal. The main thing is to get a mahogany colored stool. Ordinarily there will be no other symptoms. If the dose is too large, a slight enteritis may result. If a mahogany colored stool is not obtained, it may be necessary to increase the dose. A mahogany colored stool is the standard used to judge sufficient dosage. This treatment is continued for from one to three weeks.

DR. JOHN V. BARROW, Los Angeles: We cannot prove absolutely that these organisms are the cause of certain diseases until we have succeeded in growing them in pure culture. Likewise, adequate treatment awaits the accomplishment of this result. Etiologically, these protozoa cannot be grouped all together with any more reason than we could group all bacteria as a single causative factor of disease. Protozoan pathologic conditions must be looked for both locally and systemically. As an irritant to mucous membrane, they probably are far more potent than bacteria and furnish atria for subsequent easy bacterial invasion. As an absorbable foreign, toxic protein, their billions of dead bodies produce the direst systemic pathologic conditions. We know that certain foreign proteins produce marked effect when absorbed from the skin. Why can we not look for allergic and anaphylactic reactions from the mucous membrane as well? The similarity of symptoms which these patients manifest is striking. The general low vitality, the tendency to neuritic disturbances, neck pains and muscle weakness often accompany such laboratory findings as hypochlorhydria and liver dysfunction. These are symptoms of chronic toxic absorption. Logically, these protozoa would affect such organs as the stomach by the systemic route, i. e., toxic depression of secretory glands, and asthenia of muscle tissue. Texas is a rare and salubrious state; but if she can gather together 1,000 cases of protozoan infections without a single case of arthritis deformans among them, she is unique indeed. I have recently analyzed a considerable group of cases in California. These patients came from nearly every state in the Union, and the percentage of contribution from each state was much the same. When these infections are severe enough to produce toxin *en masse*, the case is then an entity demonstrable both by clinical and by laboratory means. I cannot agree that methylene blue has much efficacy in the treatment of *Chilomastix* and *Trichomonas* infestation. I agree with Dr. Castellani that it generally takes months of treatment

2. Barrow, J. V.: A Clinical Study of Intestinal Protozoa, Am. J. Trop. Med. 4: 23 (Jan.) 1924.

to accomplish very much. As the disease is chronic, so also must be its treatment.

DR. LOUIS A. BUIE, Rochester, Minn.: Dr. Lynch has referred to a group of cases in which he was able to demonstrate a condition which he terms "colitis," and he has been able to confirm the presence of this condition with proctoscope and roentgen ray. I have had the opportunity to examine a number of people who have had this flagellate infestation, and I have never been able to identify anything which I would characterize as colitis. I should therefore like to have Dr. Lynch advise us as to the evidence he has especially on proctoscopic examination which leads him to believe that there is a "colitis" present.

DR. W. S. THOMAS, Clifton Spring, N. Y.: We have examined approximately 6,000 specimens. Our figures agree rather well with those of Dr. Lynch, except that the figures on *Trichomonas* and *Chilomastix* infestation are reversed. We find more *Chilomastix* than *Trichomonas*. We have tried to show that the flagellates have some bearing on the condition from which these patients suffer when they come to us, but up to the present time have not been able to attribute any of the symptoms to flagellates. This holds for *Giardia* as well as for *Trichomonas*. We have tried various methods of treatment and have been unsuccessful in all of them. We have not tried mercurochrome in *Giardia*. We have thought at times that we could cure *Giardia* infestation, but by following them over a long period of time we invariably found a reappearance of the cysts. We have no evidence that flagellates cause disease.

DR. M. D. LEVY, Houston, Texas: In our part of the country the cases of flagellate infestation seem not to be associated with arthritis deformans. Among 250 cases seen in Galveston, I do not recall a single case of arthritis deformans that showed flagellate infestation. We have tried practically all treatment mentioned. Boyd noted cultures of *Trichomonas* in the stool only when bile was absent. Acting on that suggestion, we tried to increase the flow of bile through the intestine by giving hydrochloric acid in capsules. However, our experience has not borne out first conclusions. The effect of calomel in the cases Dr. Castellani mentioned may have been due somewhat to bile concentration. Recently a technician suggested to me the use of calomel in combination with arsphenamine by the transduodenal route. I have not had the opportunity of using this treatment.

DR. FRANK SMITHIES, Chicago: I am convinced that chronic protozoiasis, as it exists in residents in the temperate zone, is different in symptomatology and effects in the intestine from the "carrier type" of protozoiasis as seen in persons who live in warm climates. That flagellates can cause diarrhea is proved by Epstein's studies on children and the effects of experimental work on laboratory animals. As Dr. Castellani mentioned, when there is massive infestation of *Trichomonas* in a person who is not accustomed to harboring these organisms in his alimentary tract from birth, symptoms demanding treatment result. The native of the South who harbors flagellates chronically is similar to the typhoid carrier: he does not have the disease, but he is rarely free from some dysfunction. While these patients develop a certain type of local immunity, they are dangerous to others not so well able to resist. Northerners who get an acute infestation do not develop that immunity and become sick. We believe that a number of these persons carry the protozoan in their biliary tracts. Dr. Oleson and I have on record thirty-two cases in which we have recovered by duodenal drainage various protozoa and, on one occasion, viable hookworms. We believe that the biliary tract is a point of focal infestation from which, from time to time, there are recurrences. If a person has an ulcerative lesion in the colon, if he is of "cancer age," and has these living, traumatizing organisms present in his bowel for a number of years, there is a distinct liability to the development of malignant disease. We have followed seven persons from four to eleven years. They had infestations with flagellates, had chronic ulcerative colitis, and eventually died from carcinoma of the colon. Thus, it becomes evident that in temperate zone patients it is our duty to get rid of the flagellates early. About thirteen years ago, I suggested massive doses of calomel as treatment for flagellates. I still believe that this treatment not only gets rid of flagellates but exerts a beneficial effect on the coincident rich bacterial flora. We starve the patient for three days and give from 5 to 15 grains (0.3 to 1 Gm.) of calomel in one dose in the evening and then follow it by a saline the next morning. We repeat this dose every five days for three treatments. Patients in whom there remains such a troublesome parasite as *Giardia* receive a dose of calomel once every two or three weeks, or even a month, for a year. Patients who are unusually resistant may be treated successfully by properly controlled doses of thymol, from 60 to 90 grains (4 to 6 Gm.), followed by a saline in six hours. But we cannot hope not to have a recurrence in persons whose appendix or gallbladder harbor flagellates year after year. Surgical removal is often needed. In regard to actual injury in the colon, I believe that none of the flagellates, with the possible exception of *Giardia*, ever produce ulceration. When flagellates are found in the ulcerations of the large bowel, the ulcers have been in there from some previously existing cause, probably infection, and the finding of the flagellates is accidental and represents only the fact that flagellates are able to live in the presence of partly devitalized or actually dead tissue.

DR. SIDNEY K. SIMON, New Orleans: I believe that a great deal of agitation in regard to flagellate intestinal infestation represents much ado about nothing. It has been my experience that flagellate infestation, especially in this part of the world, is rather a common affair. Our records show that more than 8 per cent of the stools examined by us in a routine manner showed *Giardia* infestation. Not 0.5 per cent of those persons have any intestinal disturbance at all. Of course, that is not definite proof of the pathogenicity of the organ, but still from other observations that we have made I think it is far fetched to say that no protozoan organism is capable of entering the bowel wall itself; that it is incapable of penetrating the wall, boring into the tissue. I think it is safe to say that the pathogenicity of that particular organ is of low grade. It is thinkable that a toxin might be secreted by the organism and that mechanical irritation in the intestinal mucosa may be present in enormous quanity in the organism which may produce a very mild degree of irritation and pathogenicity. In regard to the treatment, I must confess I am a great skeptic. I have tried out almost all the plans suggested in the literature. Several years ago I said that I thought we had arrived at a definite basis of treatment with intraduodenal injection or instillation of arsphenamine. We had a series of about twenty-five cases with apparently good results. But, as has been the case in many instances, the cure was only apparent, not absolute. After testing out the stools a number of times for the presence of flagellates, and finding them absent, we considered the patient cured; but on subsequent examinations, especially after the use of large doses of calomel, and so forth, they showed recurrence of the infestation. I am skeptical about all forms of treatment suggested.

DR. KENNETH M. LYNCH, Dallas, Texas: Dr. Castellani emphasized an important point, which I have been making for several years, that we must make our studies more specific. While this paper is a discussion of the flagellates as a group, the study carries the proposal to make an analysis in relation to species. As to the importance of numbers, mentioned by Dr. Castellani and Dr. Smithies, when are the numbers in the stool representative of the numbers in the intestine? We know that in the same person they may not appear at one time, and again they may be found in showers, particularly after taking a purgative. They increase rapidly in this fluid medium, perhaps even after passage. Dr. Castellani mentioned that all flagellates except *Giardia* (if not *Giardia* as well) are intestinal lumen dwellers. To go into a discussion of the systemic effects of such lumen dwellers and of such symptoms as leg weakness and headache leads us into a field of pure conjecture. We know nothing about whether they give rise to a poison or, if they do, whether it is absorbed. As to treatment, I have not considered that in my paper.

Hegner's protein diet has not come up to expectations with us. There are a number of drugs, mercurochrome for instance, which will kill intestinal flagellates. For that matter, water will kill *Chilomastix* trophozoites. The problem is to get in contact with them. In regard to the effect of the arsphenamines, I have kept *Trichomonas* and *Chilomastix* alive for considerable periods of time in solutions of greater strength than I would expect to be introduced into the cecum therapeutically. Dr. Smithies discussed their habitat. From human and other animal necropsies I think of the main habitat of *Chilomastix* and *Trichomonas* as the cecum and first part of the colon, perhaps extending, at times, for a short distance into the lower ileum. *Giardia* we think of as a duodenal dweller. Dr. Buie asked about the diagnosis of colitis. Any diagnosis given in this study is, I suppose, subject to the well known error of all such clinical diagnoses, even in the best of hands. Dr. Simon calls the problem much ado about nothing, but the prominence given it is growing. We must have this in mind; we must go back to fundamentals and have better controlled studies than in the past.

PRACTICAL CONSIDERATIONS OF RENAL PHYSIOLOGY AND FUNCTION

THEIR APPLICATION TO THE MANAGEMENT OF NEPHRITIS *

PHILIP S. HENCH, M.D.
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The functions of the kidney can be readily outlined. Regarding renal physiology, however, such a great mass of apparently contradictory data has accumulated that various opposing theories of the modus operandi have been advanced. This has resulted from the fact, as Richards [1] has stated, that the intricacy of the structure of the kidney and its compactness of mass have prevented the development of analytic experiments of compelling force. Concomitant with and resulting from these studies of renal physiology and function, many tests have been elaborated for the purpose of exposing the inability of the kidney to carry out one or more of its several functions. A brief survey may be useful to differentiate such knowledge of practical importance to clinical medicine from that of less direct or only theoretical bearing.

FUNCTIONS OF THE KIDNEY

There are four established functions of the kidney: (1) the excretion of certain nonvolatile end-products of metabolism; these products reach the kidney in a preformed state and are for the most part débris of protein or tissue catabolism, urea, uric acid, creatinine, and so forth; (2) the regulation of the body economy for water and salts; the osmotic pressure of the blood depends largely on the maintenance of water balance and salt content; the variations in the amount and specific gravity of the urine are reflections of such regulation; (3) the maintenance in part of the acid-base equilibrium of the body by the excretory power of the kidney, and (4) the synthesis of hippuric acid and possibly a small part of the urinary ammonia.

In general, therefore, the function of the kidney is almost entirely excretory in character. It separates from blood substances carried to it which are injurious to the body and excretes them in the urine, at the same time preventing the undue elimination of food products and other vital substances. Thus it is of prime importance in maintaining the constant "milieu interieur" so essential to normal bodily activity.

THEORIES ON RENAL PHYSIOLOGY

Two main theories have prevailed regarding the manner whereby the functions are carried out, the "vital" and the "mechanistic." Experimental data in support of both views are abundant. A brief summary of this development and a comparison of them is given by schema.

Bowman's [2] observations, in 1842, based entirely on anatomic studies, led him to believe that renal function was carried on by secretion of "water from glomeruli to aid in the separation and solution of uriniferous products from the epithelium of the tube."

Ludwig,[2] however, in 1844, advanced the theory that secretion, a "vital process," was not a property of renal tissue but that excretion was carried on by purely mechanical processes. A protein-free filtrate containing blood crystalloids in the proportion in which they exist free in the blood is excreted by physical osmotic pressure through the glomeruli, and large amounts of water, and Ludwig later included some solids which are reabsorbed by the tubules by simple diffusion.

Heidenhain,[2] in 1874, revived the Bowman theory by his physiologic studies. He maintained that the "vital" property of secretion was present both in the glomerulus and in the tubule; that water and salt were actually secreted, not excreted by mechanical filtration through the glomeruli, and that urea, uric acid and other products were added to the glomerular secretion by the secretory power of the renal tubular cells.

Cushny,[3] in attempting to reconcile apparently conflicting data, evolved the "modern theory," ascribing purely mechanical methods to the glomerulus but active vital properties to the tubular cells. A deproteinized plasma which included useful substances, sugar, chlorides, amino-acids, as well as waste products, urea, uric acid, and so forth, is mechanically filtered from the glomeruli. The useful substances are reabsorbed by the cells lining the tubules, including most of the water and chlorides which are filtered through the glomeruli but which the body cannot afford to lose. The advantage of the "modern view" of Cushny was that it "reduced the kidney to a machine instead of postulating for it the capacity of a highly trained analytic chemist. One part filters off the plasma colloids, another part absorbs a fluid of unchanging composition (Locke-Ringer solution). The kidney exercises no discrimination but continues these activities through life."

The recent work of Starling and Verney [4] on the kidneys of dogs supports the filtration-reabsorption idea of Cushny but indicates also the secretion of substances into the tubule, including the further addition of urea, also excreted from the glomeruli. Wearn and Richards,[5] by direct catheterization and analysis of glomerular urine of frogs, and comparison with simultaneous collections of bladder urine, found that a

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* From the Division of Medicine, Mayo Clinic and the Mayo Foundation.

* Read before the Section on Practice of Medicine at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Richards, A. N.: Kidney Function, Am. J. M. Sc. **163**: 1-19 (Jan.) 1922.

2. Quoted by Richards (footnote 1).

3. Cushny, A. R.: The Secretion of Urine, London, Longmans, Green & Co., 1917.

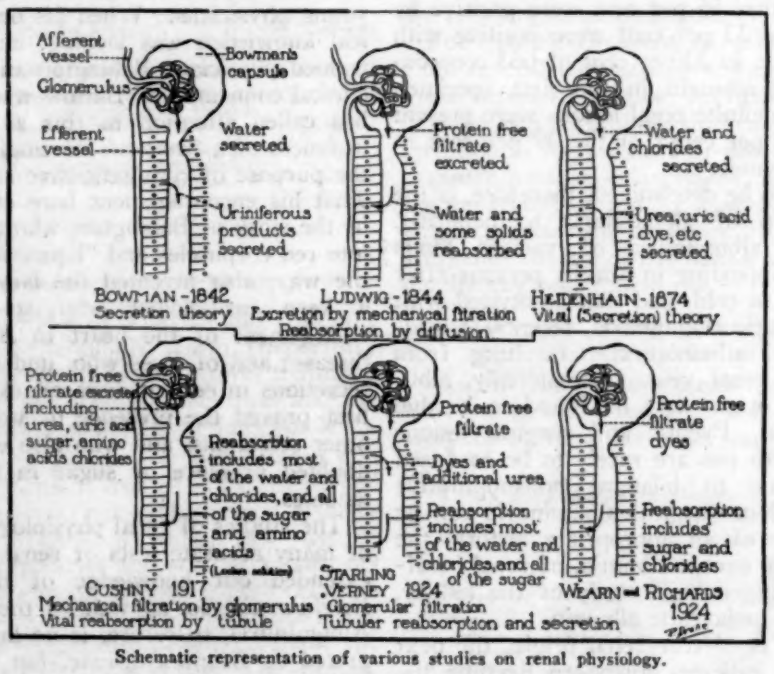
4. Starling, E. H., and Verney, E. B.: The Secretion of Urine as Studied on the Isolated Kidney, Proc. Roy. Soc. London, B **97**: 321-363, 1924-1925.

5. Wearn, J. T., and Richards, A. N.: Observations on the Composition of Glomerular Urine, with Particular Reference to the Problem of Reabsorption on the Renal Tubules, Am. J. Physiol. **71**: 209-227, 1924-1925.

protein-free watery fluid containing sugar was filtered through the glomerulus, but that certain of the substances of the filtrate were reabsorbed with different thresholds by the tubular cells.

Regarding the elimination of dyes (indigo carmine, phenolsulphonphthalein), controversial opinion also exists. Heidenhain saw indigo carmine apparently in the tubules only, with colored granules in the epithelial cells of the tubules, and based his contention regarding the secretory power of these cells on this observation. Rowntree and Geraghty [6] believed that phenolsulphonphthalein was excreted mostly by the tubules. Cushny believed that these dyes are almost entirely excreted by the glomeruli, and concentrated in the tubules during reabsorption. Starling and Verney give evidence to indicate that such dyes are secreted by the tubules. Wearn and Richards, however, actually found small amounts of dyes excreted from glomeruli which then apparently became more prominent in the tubules because of concentration resulting from reabsorption of water. Bieter and Hirschfelder,[7] using Richards' technic, concluded that no dye is secreted by tubules, but that all comes through the glomeruli. Marshall and his co-workers,[8] however, believe that phenolsulphonphthalein is actively secreted by the tubules of the mammalian kidney.

Summarizing the various theories would lead to the present acceptance of the belief that mechanical filtration of a protein-free fluid occurs through the glomeruli, and that this filtrate is further elaborated into urine by the action of the tubules through a process either of reabsorption alone or of reabsorption plus active secretion.


Afferent vessel
Bowman's capsule
Glomerulus
Efferent vessel
Water secreted
Uriniferous products secreted
BOWMAN - 1842
Secretion theory
Protein free filtrate excreted
Water and some solids reabsorbed
LUDWIG - 1844
Excretion by mechanical filtration
Reabsorption by diffusion
Water and chlorides secreted
Urea, uric acid dye, etc secreted
HEIDENHAIN - 1874
Vital (Secretion) theory
Protein free filtrate excreted including urea, uric acid sugar, amino acids chlorides
Reabsorbtion includes most of the water and chlorides, and all of the sugar and amino acids
CUSHNY 1917
Mechanical filtration by glomerulus
Vital reabsorption by tubule
Protein free filtrate
Dyes and additional urea
Reabsorption includes most of the water and chlorides, and all of the sugar
STARLING VERNEY 1924
Glomerular filtration
Tubular reabsorption and secretion
Protein free filtrate dyes
Reabsorption includes sugar and chlorides
WEARN RICHARDS 1924

Schematic representation of various studies on renal physiology.

APPLICATION OF PHYSIOLOGIC KNOWLEDGE

The differential diagnosis of various renal lesions would be greatly simplified were one able to bring such physiologic data into direct relationship with the pathologic findings. One would like to infer that albuminuria would always designate primary glomerular, not tubular, injury. If urea is entirely excreted through glomeruli, one might infer that nitrogen retention would occur only with interference with glomerular function, and that tubular disease could not be associated with albuminuria or urea retention but with interference mainly in the elimination of water and chloride. If in tubular disease there is interference with reabsorption of water and chlorides, dehydration should result. Edema, on the other hand, could be explained on the basis of irritation of the tubular cells resulting in an increased reabsorption of water and chlorides; by interference with mechanical filtration of water by glomeruli, which one would suppose should be accompanied by urea retention, or, as Epstein [9] has suggested, by a tissue affinity for water and salt, on account of changes in the osmotic force of the blood, whereby edema fluid does not reach the kidney for elimination.

It is obvious that no such general inferences can be drawn. Although renal lesions do pathologically quite frequently run true to these supposed physiologic conceptions, so many exceptions occur that pathologic prognostications cannot be made categorically from the clinical picture. For example, the pathologic findings associated with experimental or clinical mercury nephritis (nephrosis) are almost, if not entirely, tubular, not glomerular, and yet marked retention of nitrogen occurs. In other instances, marked glomerular injury will be found, with very little retention of nitrogen but with outstanding edema.

No distinct separation of renal lesions can therefore be expected. In a great many cases the renal lesions are diffuse and involve all renal structures. Furthermore, every glomerulus destroyed eventually probably implicates its corresponding tubule in degeneration (nephrosis). Hence, all nephritis will command a degree of nephrosis, although the reverse is not necessarily to be expected. Temporary nonfunction of a glomerulus as well as organic disease probably also effects changes in tubular function. Invisible pathologic lesions must play a part. Indeed, the only clinical evidence during life that the tubules are ever involved is the appearance of glomerular epithelial casts with more or less detritus of the cells of the tubules.

Cushny expresses the belief that "the invisible lesion of the glomerular capsule plays a much more important rôle than is often assigned to it," and that when albuminuria exists, the primary lesion seems to be in the capsule.

6. Rowntree, L. G., and Geraghty, J. T.: The Phthalein Test: An Experimental and Clinical Study of Phenolsulphonephthalein in Relation to Renal Function in Health and Disease, Arch. Int. Med. **9**: 284-338 (March) 1912.

7. Bieter, R. N., and Hirschfelder, A. D.: The Excretion of Dyes and Other Substances in the Frog's Kidney and Its Bearing upon the Theories of Renal Secretion, Am. J. Physiol. **68**: 326-337 (April) 1924.

8. Marshall, E. K., and Vickers, J. L.: Mechanism of Elimination of Phenolsulphonephthalein by Kidney Proof of Secretion of Convoluted Tubules, Bull. Johns Hopkins Hosp. **34**: 1-7 (Jan.) 1923. Marshall, E. K., and Crane, M. M.: The Secretory Function of the Renal Tubules, Am. J. Physiol. **70**: 465-488 (Nov.) 1924. Edwards, J. G., and Marshall, E. K.: Microscopic Observations of the Living Kidney After the Injection of Phenolsulphonephthalein, ibid. **70**: 489-495 (Nov.) 1924.

9. Epstein, A. A.: Concerning the Causation of Edema in Chronic Parenchymatous Nephritis: Methods for Its Alleviation, Am. J. M. Sc. **154**: 638-647 (Nov.) 1917; The Nature and Treatment of Chronic Parenchymatous Nephritis (Nephrosis), J. A. M. A. **69**: 444-449 (Aug. 11) 1917; Further Observations on the Nature and Treatment of Chronic Nephrosis, Am. J. M. Sc. **163**: 167-186 (Feb.) 1922; Clinical Course and Therapeutic Management of Chronic Nephrosis, M. Clin. N. Amer. **5**: 1067-1079 (Jan.) 1922.

Although confusion may result from an attempt to correlate physiologic conceptions, clinical syndromes and pathologic data in this way, the clinician can, from the standpoint of practice, honestly sidestep such confusion by a consideration purely of the clinical picture. By the use of a few simple clinical observations and a few readily available laboratory procedures, a sufficiently correct differentiation of the type of renal lesion present can be made, and with it direct indications for treatment and prognosis can be ascertained.

FREQUENCY AND SIGNIFICANCE OF ALBUMINURIA

Albuminuria is the most readily detected aberration of normal renal function. Five per cent of 60,000 healthy soldiers [10] and a similar proportion of 5,000 healthy students [11] presented this abnormality. Its incidence is much greater in those who are, or consider themselves, unhealthy and come to a physician. In a study at the Mayo Clinic by Sanford, Conner, Magath and Heck,[12] an analysis of urine by three different tests for albumin showed that 56 per cent were positive by one or more tests and 33 per cent were positive with all tests. Furthermore, in 39 per cent of 663 consecutive cases there was albumin in the first specimen analyzed. However, definite renal lesions were present in less than half (40 per cent) of the 39 per cent in which albumin was found.

The first question to be determined, therefore, is the diagnostic relationship of albuminuria to nephritis. So-called functional albuminuria of various kinds includes mainly that appearing in healthy persons after exercise or exposure to cold, and that associated with posture called orthostatic albuminuria, recently considered to be unilateral albuminuria [13] resulting from pressure on the left renal vein. Occasionally, albuminuria of nonrenal origin may be found to be due entirely to prostatitis. Pyelitis and surgical lesions producing albumin with pus are rarely to be confused with albuminuria due to bilateral nonsuppurative nephritis. Functional or surgical albuminuria can be excluded by the lack of an appropriate history, the absence of other signs, except albumin, of renal insufficiency, negative roentgenologic study of the kidney, or a negative test for orthostatic albumin.

If the albuminuria is of true renal origin, the next question is whether it indicates outspoken Bright's disease or a minor type of medical renal lesion. Such a consideration is of utmost importance. Following Bright's [14] original observations on albuminuria and the pathologic changes in the kidney, the disease by the very strength of his clinical and necropsy data was considered therapeutically almost hopeless. Then began the era when albuminuria doomed many comparatively healthy persons to the fear of an early death. So indiscriminately was dire prognosis made on this evidence that Bright wrote his second paper,[15] mainly for the purpose of correcting this misconception. He tried to modify the general pessimistic view by stating in his conclusion that "the disease on which the secretion of albuminous urine depends is in the commencement functional, that as long as it continues in this state it is capable of cure or of relief by various means."

Barlow [16] and Rees,[17] the chemical colleagues of Bright, further softened the sting of albuminuria by their careful analyses. Rees said, "It is interesting to observe how supposed exceptions to the law declared by Dr. Bright become explained away by advances in the chemical pathology of the urine." They further extended the laboratory data necessary for a diagnosis of morbus Brighti to include not only the heat test but also the nitric acid test.

It is of interest to note in Bright's memoirs the generous expressions of gratitude that he makes for the enthusiastic cooperation of several colleagues, notably Babington, Barlow and Rees. An intensive study of the disease that bears Bright's name was instigated by him in conjunction with this group of well trained young physicians. When his own pathologic and clinical knowledge was lacking, he called the chemically trained physicians Babington and Rees to his aid; for clinical confirmation, Barlow was invaluable. Rowntree has called attention to this as one of the foremost instances of a "master" developing group medicine for the purpose of comprehensive study of a new disease. That his encouragement bore ample fruit was shown by the work of Babington, who first analyzed the blood into red corpuscles and "liquor sanguinis" and who, by the way, also invented the laryngoscope; of Barlow, a keen cardiologist who studied particularly the enlargement of the heart in Bright's cases of renal disease; and of Rees who, undertaking the analysis of secretions in certain diseases, especially of the kidney, first proved the presence of urea in blood, milk and other secretions, and who also established the hitherto doubted presence of sugar in the blood in cases of diabetes.

The studies of renal physiology and the development of many accurate tests of renal function have further extended our knowledge of the character of true Bright's disease, as well as the supposed exceptions. Albuminuria, therefore, is no longer universally interpreted as Bright's disease, but merely as a sign-post which may point to diverse pathologic manifestations. For the practitioner, however, albumin and casts in the urine are the usual criteria for a diagnosis of nephritis, and albuminuria has in general retained its original evil heritage in diagnosis and prognosis. This is probably somewhat fortunate, as it has led to prophylactic measures and conservative treatment, even though sometimes unwarranted and often excessively rigid. The differentiation of significant and insignificant forms of albuminuria can be made only by a careful analysis of readily available clinical and laboratory data.

TYPES OF NEPHRITIS

Billings,[18] in his analysis of the minimal needs for "the resourceful general practitioner of modern medicine," has made a forceful plea for simple tests of function and simple classifications of renal lesions. Clinical classifications, if they lack clean-cut delineations, are odious. In individual cases such clarity is

10. Maclean, H.: The Incidence of Albuminuria and Casts in British Soldiers During Training and the Relationship of This Condition to War Nephritis, Brit. M. J. **1**: 94-98 (Jan. 25) 1919.
11. Lee, R. I.: Albuminuria in Young Men, M. Clin. N. Amer. **3**: 1059-1063 (Jan.) 1920.
12. Sanford, A. H.; Conner, H. M.; Magath, T. B., and Heck, F. J.: The Significance of Slight Albuminuria, Collected Papers of the Mayo Clinic, Philadelphia, W. B. Saunders Company **13**: 308-337, 1921.
13. Rieser, Willy; and Rieser, S. L.: The Etiology of Orthostatic Albuminuria, J. A. M. A. **78**: 644-647 (March 4) 1922. Weber, F. P.: A Fatal Case of Emaciation in a Girl at About the Period of Puberty, with General Visceroptosis, Hypotonicity of the Stomach and Achylia Gastrica, Brit. J. Dis. Child. **18, 19**: 75-83, 1921-1922.
14. Bright, Richard: Cases and Observations Illustrative of Renal Disease Accompanied with the Secretion of Albuminous Urine, I, Guy's Hosp. Rep. **1**: 338-400, 1836.
15. Bright, Richard: Cases and Observations Illustrative of Renal Disease Accompanied with the Secretion of Albuminous Urine, II, Guy's Hosp. Rep. **5**: 101-161, 1840.
16. Barlow, S. H.: Remarks on Certain Specimens of Urine Imitating Albuminous Urine, Guy's Hosp. Rep. **1**: 401-402, 1836.
17. Rees, G. O.: Observations on Real and Supposed Pathological Conditions of the Urine, Guy's Hosp. Rep. **6**: 121-130, 1841.
18. Billings, Frank: The Resourceful General Practitioner of Modern Medicine, J. A. M. A. **80**: 519-524 (Feb. 24) 1923.

not always obtainable, but Volhard and Fahr's [19] classification probably is most useful and modern. It is briefly compared with two other widely used simple classifications (table 1).

Acute Nephritis.—Acute nephritis needs but little discussion. The acute nature of its onset with the findings of hematuria, albumin and casts, associated with edema or retention of nitrogen, or both, is characteristic. Even with serious symptoms it may clear up fairly rapidly. Of course, certain cases become chronic.

TABLE 1.—*Comparative Classification in Nephritis*

Volhard and Fahr (Clinical and Pathologic)	Christian (Clinical)	Widal and Javal (Functional)
Acute (a Diffuse glomerular (b) Focal glomerular (c) Nephrosis (tubular)	Acute	Acute and chronic
Chronic nephritis (a) Chronic diffuse glomerular nephritis, early chronic or late terminal	Chronic (a) With vascular hypertension	(a) Azotemic
(b) Chronic nephrosis (tubular)	(b) With edema	(b) Chloremic
(c) Mixed, a and b	(c) Mixed or combined type	(c) Mixed
(d) Chronic focal	(d) Renal arteriosclerosis progressing to chronic nephritis	
(e) Arteriosclerotic nephritis; nephritis secondary to vascular change	(e) Essential vascular hypertension progressing to chronic nephritis	
(f) Chronic diffuse glomerular secondary to malignant sclerosis, giving same renal picture as (a)		

Of the chronic nephritides of Volhard and Fahr, the diffuse glomerular and the tubular form (nephrosis) may be serious and may deserve most careful treatment and a guarded prognosis. The chronic focal and the vascular form are generally much less serious (table 2).

Chronic Glomerular Nephritis.—It will be seen that chronic glomerular nephritis is true Bright's disease and is really a systemic disease, not exclusively a primary renal lesion. It is probably a widespread vascular disease affecting the capillaries and smaller vessels not only of glomeruli, but also of the heart, periphery (as seen in the nail-beds by the Lombard method) and eyegrounds, with involvement also of bone marrow and the production of hypoplastic anemia. The demonstration of these other lesions is of great aid in separating this graver form of nephritis from all the others. Without some or all of these associated lesions, especially elevated blood pressure, such a diagnosis should not be frankly made.

Chronic Nephrosis.—Chronic nephrosis is chiefly demonstrated by edema and albuminuria, without systemic manifestations. A dry type (albuminuria without edema) is frequently seen as a residuum of an acute infection and is present merely as a postinfectious albuminuria with practically no other signs of renal insufficiency. Nephrosis and chronic glomerular nephritis may occur alone in pure type, although often, in the progression of either type, manifestations of the other forms appear and a mixed type results.

Focal Nephritis.—Focal nephritis is so called because it is generally considered to be caused by focal infection elsewhere, such as infected teeth or tonsils, or, more rarely, manifest infection, such as endocarditis. The only positive findings are generally albumin, erythrocytes, and at times casts in the urine. Systemic evidence of renal insufficiency is absent. The exact pathologic changes have not been determined, but are supposed to consist of scattered areas of infection in glomeruli. Following removal of distant foci, this often clears up entirely. No restrictions of diet are necessary, although careful observations should be made for a year or two to verify the comparatively innocent nature of the lesion.

Arteriosclerotic Nephritis.—Arteriosclerotic nephritis is generally a more or less incidental finding associated with arteriosclerosis of primary or secondary type. In most cases it eventually manifests itself merely as a mild albuminuria with nocturia, a slight degree of retention of nitrogen or phenolsulphonphthalein, and a rather slowly progressive and comparatively benign type of renal insufficiency. A greater degree of renal insufficiency may result from the more severe form of arteriosclerotic nephritis which occurs as a terminal event in cases of essential hypertension, in which the hypertension is primary and the renal vessels participate in the resulting arteriosclerosis.

For the development of clinical acumen and for more careful treatment it is very desirable to separate these forms of chronic nephritis. This may usually be done by a careful physical examination (with special attention to the presence or absence of increased blood pressure, cardiac enlargement, anemia and changes in the eyegrounds) and by a search for disturbances in renal function, the existence of which can be demonstrated by the use of five simple tests that can be carried out by any practitioner.

MAXIMAL INFORMATION OBTAINED FROM SIMPLE TESTS OF FUNCTION

Certain simple functional tests will show whether nitrogen is being retained, the degree of interference with the excretion of water and salt, and the degree of the systemic involvement. This is all that is practically necessary, and can be accomplished by: (1) the phenolsulphonphthalein test; (2) the water (dilution) test; (3) the concentration test; (4) the determination of urea retention by means of the estimation of the mercury combining-power of the blood or of the saliva (the salivary urea index), and (5) the determination of the hemoglobin percentage and the number of erythrocytes. The first three tests are well known and will be but briefly mentioned.

TABLE 2.—*Differential Diagnosis in Nephritis (Volhard and Fahr)*

Type	Urine	Water and Salt Retention; That Is, Peripheral Edema	Blood	Systemic Changes
Chronic diffuse glomerular nephritis	Albumin, casts, specific gravity fixed or low, erythrocytes present or absent	+ or 0	Moderate to marked retention of nitrogen and dyes	Blood pressure ++; anemia ++; heart enlarged; eyeground changes
Chronic nephrosis	Albumin, casts, specific gravity high	Usually + or ++	Normal	Absent
Focal nephritis	Erythrocytes, albumin or casts	Rare	Normal	Absent
Arteriosclerotic nephritis	Albumin, trace; specific gravity fixed or low	Generally only with cardiac failure	Mild retention, if any	Moderately present as compared to chronic glomerular

The Phenolsulphonphthalein Test.[6]—This was one of the first practical tests of renal function, and remains probably the most widely used. The dye may be given

19. Volhard, F.: Die doppelseitigen hämatogenen Nierenerkrankungen (Bright'sche Krankheit), Berlin, Springer, 1918.

intravenously or intramuscularly. Normally there should be a return of from 50 to 60 per cent in the urine collected for two hours and fifteen minutes after intravenous injection. After intramuscular injection, a return of from 40 to 60 per cent in the urine collected for two hours and fifteen minutes is considered normal.

Water (Dilution) Test.[19]—At 8 o'clock in the morning, 1,500 cc. of water is given on an empty stomach. Urine is collected at half-hour intervals for the next four hours. The normal output in this period varies between 1,200 and 1,800 cc.; the specific gravity should at least drop as low as 1.003.

The Concentration Test.[19]—The patient is given a diet for one day consisting of solid food only; no fluids are given. The urine is collected at three-hour intervals. The specific gravity should approach 1.030.

The water and concentration tests devised by Volhard and Fahr may possibly indicate the reserve excretory powers of the kidney. If there is a fixation of specific gravity (1.015 or below) in the absence of edema, it is a direct indication for forcing fluids, or at least for keeping up an intake adequate to prevent retention of nitrogen.

The Mercury Combining-Power of Saliva (the Salivary Index) and of Blood.—The determination of the presence or absence of retained nitrogenous bodies in the blood is of great importance in indicating proper treatment. These metabolites are mainly urea, uric acid and creatinine. Uric acid is increased in the blood probably before urea. Its relation to renal injury is not entirely understood, possibly on account of errors of method. Retention of creatinine gives more information in chronic renal disease with regard to the severity of the renal injury and life expectancy, as it generally occurs only with extensive renal destruction. However, from the practical standpoint, the determination of the blood urea generally gives the greatest amount of information. Although its determination is simple in the hands of the laboratory worker, it is hardly within the realm of the general practitioner. Therefore, the determination of the mercury combining-power of blood or of saliva, which may be made readily within ten or fifteen minutes with a minimum of laboratory apparatus and which gives the same information, is especially suitable for routine office work. The technic for determination of the mercury combining-power of saliva (the salivary index) and of blood has been fully described elsewhere by Hench and Aldrich.[20] In brief outline, the principle is as follows:

The methods are based on the principle that mercury combines with such products as urea, creatinine and uric acid, when a solution of a mercuric salt is added to a solution containing these nitrogenous products. As mercury is added, combination continues until the mercury combining-power of the solution is satisfied, after which excess mercury appears in the solution. The excess mercury is readily detected by adding a drop of the solution to be tested to a drop of saturated solution of sodium carbonate on a white spot-plate. A dark reddish brown precipitate (the end-point) indicates the presence of excess mercury. The method may be applied to a protein-free blood filtrate obtained by the use of trichloracetic acid, or directly to saliva. By means of a very simple formula, the probable blood urea may be estimated from the mercury combining-power of blood or saliva. When urea is retained in the body there is an increase in the salivary urea proportionate to the rise in the blood urea.[21] Both in saliva and in protein-free blood filtrate, urea is the dominating mercury-combining element, and the mercury combining-power of these substances will vary primarily with changes in the concentration of the blood urea.

Anemia.—The estimation of the erythrocytes and hemoglobin is of importance from the standpoint not only of differential diagnosis but also of prognosis. As already noted, anemia of definite grade is characteristic of chronic diffuse glomerular nephritis. Brown and Roth[22] have pointed out that it is a hypoplastic anemia which may develop from four to six weeks after the onset of renal insufficiency. The tardiness of onset of the anemia is explained on the basis of decreased formation of erythrocytes. The erythrocytes in circulation at the time of the onset of the renal "break" are not affected, and therefore it is only when they are not replaced as effectively as they should be that anemia begins to appear. Bone marrow recovers its function slowly, depending to a large extent on the severity of its injury. After repeated injuries to the bone marrow, anemia becomes more severe and takes on certain characteristics of a definite hypoplastic or aplastic type. By definite anemia is meant an erythrocyte count below 4,000,000, or a Dare hemoglobin value below 70 per cent. The blotting-paper method of Tallqvist is hardly accurate enough in this instance. The presence and degree of definite anemia are not only of importance in pointing to the differential diagnosis of the chronic glomerular type of nephritis, but also of prognostic importance, as will be noted.

INFORMATION REGARDING PROGNOSIS

In prognosis, as in diagnosis, functional tests are of great value as an adjunct to a careful physical examination. A grave prognosis in cases of chronic nephritis is indicated by various findings: (1) a consistently high level of blood urea or a continued low excretion (5 per cent or less) of phenolsulphonphthalein in the urine in two hours; (2) the presence of the characteristic neuroretinitis of chronic glomerular nephritis; (3) the presence of myocardial injury with significant changes in the electrocardiogram,[23] and (4) the maintenance of a high level of blood creatinine (from 5 to 7 mg. or more for each 100 cc.).[24] Life expectancy is generally limited to a few months when such findings are present. Unfortunately, as Brown and Roth have noted, these valuable indications cannot always be investigated because of the technical skill required. The mercury combining-power of blood or saliva can now be determined when blood urea cannot. Furthermore, the estimation of the hemoglobin and the number of erythrocytes will afford prognostic information similar to that of creatinine determinations; Brown and Roth[25] found a parallelism between the mortality rates in cases of nephritis with definite anemia (in the absence of gross hemorrhage) and those with retention of creatinine. When moderate anemia was present (hem-

20. Hench, P. S., and Aldrich, Martha: A Salivary Index to Renal Function, J. A. M. A. **81**: 1997-2003 (Dec. 15) 1923; Apparatus for the Determination of the Salivary Urea Index, ibid. **82**: 1194-1195 (April 12) 1924; The Mercury Combining-Power of Deproteinized Blood, Proc. Soc. Exper. Biol. & Med. **22**: 556-558, 1924-1925; The Mercury Combining Power of Blood: A Simple Method for Estimating Urea Retention, to be published.

21. Hench, P. S., and Aldrich, Martha: The Concentration of Urea in Saliva, J. A. M. A. **79**: 1409-1412 (Oct. 21) 1922.

22. Brown, G. E., and Roth, Grace M.: The Anemia of Chronic Nephritis, Arch. Int. Med. **30**: 817-840 (Dec.) 1922.

23. Willius, F. A.: Electrocardiography and Prognosis, Arch. Int. Med. **30**: 434-450 (Oct.) 1922.

24. Meyers, V. C., and Killian, J. A.: The Prognostic Value of the Creatinine of the Blood in Nephritis, Am. J. M. Sc. **167**: 674-695, 1919.

25. Brown, G. E., and Roth, Grace M.: Prognostic Value of Anemia in Chronic Glomerular Nephritis, J. A. M. A. **81**: 1948-1950 (Dec. 8) 1923.

oglobin between 50 and 70 per cent), the mortality rate within a period of two and a half years was 46 per cent. In the group with severe anemia (below 50 per cent hemoglobin) the mortality rate was 85 per cent in two and a half years.

TREATMENT

Scientific treatment depends on the recognition of the types of functional disturbances present. Although the clinical and pathologic classification may not be clear in the individual case and may have to be disregarded, a functional classification must be attempted. The treatment of nephritis is not a "routine" one, but must be individualized. Best results can be obtained only by determining, by tests, the individual functional capacity of each patient. One of two main functional disturbances is present during the periods of insufficiency. First, the retention of nitrogenous products in the body and, second, the retention of salts and water; in diffuse renal lesions, both phenomena may be observed. In cases of chronic nephritis, the administration of a milk diet of from 2 to 4 quarts daily as a routine is not scientific treatment. If urea is being retained, such a diet includes too much protein; if edema is present, it contains too much fluid and salt. Retention of water readily manifests itself by edema. Marked retention of nitrogen, however, may occur without producing clinical symptoms of uremia. The determination of the presence or absence of retention is essential, therefore, for rational treatment. When the uremic (azotemic) and the chloremic type of nephritis are found in pure form, treatment in each is quite different. In those showing retention of nitrogen without edema, the treatment is sparing and eliminative: first by preventing further accumulation by means of a diet low in protein (approximately 40 Gm. daily), but of an adequate caloric content, and, secondly, by forcing rather than withholding fluid. Transfusions may occasionally be very usefully combined with withdrawal of from 300 to 500 cc. of uremic blood. In the chloremic form when edema is a prominent feature, the reverse holds true. The amount of fluid and salt should be minimal, while restriction of protein may not only be unnecessary but may be actually contraindicated. Epstein actually uses a diet high in protein for certain types of nephrosis, to take advantage of the specific dynamic action of protein in restoring the normal equilibrium of the blood.

Elimination can be accomplished by catharsis, sweats and hot packs, or by diuretics. Useful diuretics include water, glucose, the caffein derivatives, certain inorganic acid-forming or base-forming salts, and the new organic mercurial preparations, such as merbaphen (novasurol).

Water.—With retention of urea in the absence of edema, "sparing the kidneys" by means of a low intake of fluid is not only useless but may be contraindicated. By means of the water test in individual patients, the ability of the kidneys to excrete water can be demonstrated directly. Especially when the water test and concentration test show a lowered and fixed urinary specific gravity, there is a definite indication for forcing water by mouth to the amount of from 2,500 to 3,000 cc. or more daily. This at times very definitely prolongs life by alleviating or postponing impending uremia.

Glucose.—Solutions of glucose by enteroclysis or intravenously are often quite efficacious. By vein, generally a 10 to 20 per cent solution may be given in amounts of 500 cc. once or twice a day. If this solution is not sufficiently pure, severe reactions will occur.

The uses and limitations of the caffein derivatives are well known and need no discussion. The alkali-forming inorganic salts, sodium or potassium citrate, acetate or bitartrate, as in imperial drink, are especially useful in inflammatory conditions of the urinary tract.

The newer diuretics include two acid-forming salts, calcium chloride and ammonium chloride, and the mercurial preparation merbaphen. Within the last two years, therapeutic successes heretofore unattained have followed their use alone or in combination. They are particularly indicated in patients with retention of salt and water; the nephrosis type, especially when edema has not been affected by the use of diets low in salt and fluid.

Calcium Chloride.—Calcium chloride, first suggested by Meyer and Cohn[26] and used for diuresis by Schultz[27] and by Blum and others,[28] has been given by mouth in a dose of from 5 to 18 Gm. daily for periods varying from a few days to two or three weeks.[29] Its ingestion is followed by elimination of calcium by bowel, of chlorine by the kidney, and with it large amounts of sodium, with resulting elimination of water. The urine becomes more acid, and a mild acidosis is seen also in the lowered carbon dioxide combining-power of the plasma.

Ammonium Chloride.—In many patients the ingestion of calcium chloride causes nausea and vomiting, and therefore ammonium chloride has been substituted. Such a substitution was suggested by Haldane, Hill and Luck,[30] and recent clinical reports have been made by Keith, Barrier and Whelan.[31] Ammonium chloride has been given by mouth in a dose of from 5 to 16 Gm. for periods of from three to eighteen days. The results are practically identical with those of calcium chloride. There is a danger that acidosis may be produced by either, and therefore careful watching is necessary if used in the presence of preexisting acidosis from marked renal insufficiency associated with retention of urea; in such cases it should be used rarely and with extreme caution.

Merbaphen.[32]—This organic mercurial preparation was introduced by Saxl and Heilig[33] and later used by Nonnenbruch[34] and Mühling.[35] As with ammonium chloride and calcium chloride, the excretion of sodium and chlorine in the urine is increased, but acidosis does not result as there is no change in the acid-base equilibrium. Merbaphen is injected intramuscularly and intravenously in a dose of from 0.5 to 2.0 cc. of the 10 per cent solution every three to five days, as necessary. A preliminary intramuscular injection of 0.5 cc. should be given as a precautionary measure to deter-

26. Meyer, L. F., and Cohn, S.: Klinische Beobachtungen und Stoffwechsel Versuche über die Wirkung verschiedener Salze beim Säugling, Ztschr. f. Kinderh. **2**: 360-419, 1911.
27. Schultz, E.: Klinische Beobachtungen über Nierenentzündung bei Kriegsteilnehmern, Ztschr. f. klin. Med. **86**: 111-138, 1918.
28. Blum, L.; Aubel, E., and Hausknecht, R.: L'action diuretique des sels de calcium dans la néphrite avec oedemes, Bull. et mém. Soc. méd. d. hôp. de Paris. **46**: 206-214 (Feb. 3) 1922.
29. Keith, N. M., Barrier, C. W., and Whelan, Mary: Treatment of Nephritis and Edema with Calcium, J. A. M. A. **83**: 666-670 (Aug. 30) 1924.
30. Haldane, J. B. S.; Hill, R., and Luck, J. M.: Calcium Chloride Acidosis, J. Physiol. **57**: 301-306 (June) 1923.
31. Keith, N. M.; Barrier, C. W., and Whelan, Mary: The Diuretic Action of Ammonium Chlorid and Novasurol in Cases of Nephritis with Edema, J. A. M. A. **85**: 799-806 (Sept. 12) 1925.
32. Keith, Barrier and Whelan (footnote 33). Rowntree, L. G.; Keith, N. M., and Barrier, C. W.: Novasurol in the Treatment of Ascites in Hepatic Disease, J. A. M. A. **85**: 1187-1193 (Oct. 17) 1925.
33. Saxl, Paul; and Heilig, Robert: Ueber die diuretische Wirkung von Novasurol und anderen Quecksilberingektionen, Wien. klin. Wchnschr. **33**: 943-944, 1920.
34. Nonnenbruch, W.: Ueber die Wirkung des Novasurols auf Blut and Diurese, München. med. Wchnschr. **2**: 1282-1283, 1921.
35. Mühling, Adolf: Studie über die diuretische Wirkungsweise von Quecksilber; Ausgeführt mit dem organischen Quecksilberpräparat Novasurol, München. med. Wchnschr. **68**: 1447-1447, 1921.

mine a patient's tolerance to mercury. The mechanism of diuresis following the use of merbaphen is not yet thoroughly understood. In certain cases, when diuresis has not followed the use of ammonium chloride, or merbaphen alone, combined treatment is effective, the chloride by mouth and the merbaphen intravenously. This is especially true when the blood chlorides are found to be low. According to Keith, merbaphen should be more effective after sufficient quantities of ammonium chloride have been taken to render the hydrogen ion concentration of the urine decidedly acid.

The clinical and experimental work with these new drugs seems to indicate very bright therapeutic possibilities. On the other hand, to be more effective they must be accompanied by the use of careful diets.

Posture.—When massive edema, especially of the lower extremities, cannot be influenced by the usual measures, it should be recalled that putting the patient in the "jack-knife" position with head and feet elevated will often cause the fluid to drain from the extremities and to collect in the abdominal cavity, on which paracentesis can then be performed. Posture is of importance further in its relation to convulsions and coma when massive edema is present. Rowntree [36] has emphasized the importance of this relationship and the desirability of elevating the head to prevent cerebral edema.

Removal of Foci.—This is not indicated equally in all types of cases of nephritis. It should always be advocated in the focal type. In cases of arteriosclerotic nephritis, such removal is contraindicated. It should be done when possible in cases of nephrosis and in certain selected cases as may be indicated in diffuse glomerular nephritis. When a patient is heavily waterlogged from nephrosis or suffers from severe diffuse glomerular nephritis, the surgical risk is grave, and the opportune time for eradication of foci would be after fluid has been extensively removed, or in the more compensated states of renal inefficiency. Eradication of foci in the presence of bad prognostic signs is futile and attended with grave risks.

SUMMARY

During the last decade there have been many advances in renal physiology and the classification and treatment of the nephritides. With the concise knowledge presented and the use of the five simple function tests outlined, exact indications for diagnosis, treatment and prognosis can be determined.

ABSTRACT OF DISCUSSION

DR. C. W. DOWDEN, West Baden, Ind.: If a majority of patients with nephritis are to be benefited by determination of the functional capacity of their kidneys, the more elaborate tests must be simplified or made to serve as standards against which simple and easily applied methods may be checked; they must be applicable in the home or office without the aid of a trained nurse; they must not require elaborate apparatus; they must not require much knowledge of chemistry, and they must detect the earliest signs of kidney disease. Two tests, the mercury combining power of the blood and the salivary urea index, seem to meet the requirements of these postulates and to furnish information that is quite as accurate as the more elaborate blood chemistry methods. Deviation of physiologic function (whether pathologic or not) in any organ should be reflected in the product or the end result of its normal labor. The addition to the blood stream of various dyes, drugs or chemical compounds is not testing physiologic function in the strict sense and is frequently subject to error. Even with the addition of such compounds as creatine, urea or benzoic acid, the excretory threshold may vary in different patients, and we all know the affinity of the liver for phenolsulphonphthalein, which may be reduced greatly in the urine even when the kidneys are normal. Certainly, the urine with its many components represents the end product of the work of the kidney and should furnish reliable evidence of what the kidney is capable of doing. A few years ago, I correlated the evidence derived from the phenolsulphonphthalein test, blood chemistry methods, and studies of the urine by the Mosenthal method and the coefficient of Ambard with simple studies of the urine consisting of quantity night and day, fixation of specific gravity at a high or low level, and water balance, in several hundred cases. Disturbance of function was demonstrated with equal or greater accuracy in the simpler methods. Certainly, fixation of specific gravity depends on disturbance, if not actual disease, of that portion of the kidney unit that has to do with the elimination of the urinary components, particularly salt. Marked disproportion between the intake and the output of fluids certainly concerns the transudative property of the glomeruli and the secretive property of the tubules, if such they possess. Any pathologic condition that will interfere with the normal concentrating power of the kidney and allow nitrogenous products to accumulate in the blood or to decrease in the urine, that will increase the constant of Ambard, if the rate of excretion of urea depends on the laws he has formulated, that will decrease the phenolsulphonphthalein output within two hours, will, I believe, produce a certain limitation to kidney function, depending on its extent and degree, which can be estimated by fixation of specific gravity, nocturnal polyuria, retention of fluids and appearance of edema, albumin, casts and anemia. Do not these tests vary with pathologic changes in any portion of the kidney unit? Improvements in the simple methods, which eliminates the chief objection to them, viz., the time required, are the water (dilution) test and the concentration test of Volhard and Fahr, which furnish practically the same information in a short period of time. The more elaborate methods must not be decried. When an elaborate, difficult and scientific test explains the meaning of simple phenomena, it has accomplished the greatest good and justified its very existence.

DR. L. P. GAY, St. Louis: The most valuable tests are those that can be done quickly and accurately by the busy physician. The phenolsulphonphthalein test of kidney function was of marked benefit and is widely used. The concentration-diuresis tests of Volhard and Fahr indicating kidney function and the same type of test devised by Olmsted for classification require no more equipment than a urinometer and deserve more general use. The mercury combining power of the blood showing urea retention is a simple test. The work of Schmitz, Rodenburg and Meyers seems to show that uremic convulsions occur when the inorganic phosphorus of the blood increases and the calcium decreases, regardless of the urea retention. Nevertheless, a high blood urea helps to distinguish the types of nephritis, and a reduction of the blood urea is of distinct prognostic value. Whenever possible, it is my practice to do as much laboratory work as time permits. It gives me a clearer idea of the condition than a laboratory report, and tends to lessen the tendency to machine made diagnosis, which is becoming so prevalent. Furthermore, much interesting information is gained that a technician might overlook. For this reason alone, I am glad to have the mercury combining power test in my laboratory. It is unquestionably a great advance; it can be done in a well equipped laboratory, or on the window sill of a country physician's office. The test deserves wide application as a means not only of diagnosis but also of prognosis.

DR. P. S. HENCH, Rochester, Minn.: To understand more accurately the rôle of the two tests described, which were elaborated by Miss Martha Aldrich and me, I might make the following comparison: There are three main methods for estimating the hemoglobin of blood. The busy practitioner most frequently uses the simple Tallqvist blotting paper method, somewhat inaccurate but very useful on account of

36. Rowntree, L. G.: Personal communication to the author.

its simplicity. The internist may use the Dare method to grade anemia more carefully, while for the most careful work the actual chemical determination of hemoglobin gives the most accurate results, though the procedure is not as simple as the other two methods. So for the determination of nitrogen, especially urea retention in the body, the salivary index would seem suitable for general work; the estimation of the mercury combining power of blood would be especially useful when more critical analyses are needed, and the estimation of the urea by the urease method would remain the standard test for use when the most exact refinements of technic are wanted. As I have pointed out, urea is the main variable mercury combining element in blood or saliva, although mercury combines with certain other substances. In our large range of values of blood urea, from 20 to 560 mg., the chart that I showed exhibits little differences between the values obtained for the blood urea by estimation from the mercury combining power of blood and those actually determined by the urease method. The indications for the practical usage of the tests would therefore seem clear.

IMPORTANCE OF SYMBIOSIS, OR CLOSE ASSOCIATION OF DIFFERENT SPECIES OF ORGANISM

IN THE PRODUCTION OF CERTAIN BIOCHEMICAL PHENOMENA AND IN THE CAUSATION OF CERTAIN DISEASES AND CERTAIN SYMPTOMS OF DISEASE *

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NEW ORLEANS

The subject of symbiosis has, so far, attracted little attention from medical men and bacteriologists. I use the term symbiosis *sensu lato* to indicate the living together of two organisms in close association, their close association not being detrimental to either of them. Symbiosis *sensu stricto* means that the association is not only not detrimental, but mutually beneficial. Botanists have been interested in symbiosis for many years. They discovered, for instance, that a large group of plants represent a symbiosis of two different vegetal organisms; they also found that symbiosis plays an important rôle in the nutrition processes of numerous plants and in the germination of certain seeds.

FORMS OF SYMBIOSIS

Symbiosis Between Two Vegetal Organisms; Composite Plants.—The best known example is furnished by the lichens. A lichen is a composite plant consisting of a green alga and a fungus which may be grown separately with difficulty. All of us have observed the green dust which often occurs on lichens. This powdery dust consists of young associations called soredia and are composed of algal cells and fungal hyphae. Another well known symbiotic plant is the ginger beer plant, the lumps of which are composed of a yeast (*Saccharomyces pyriformis*) and a bacterium (*Bacterium vermiforme*).

Symbiosis Between a Vegetal Organism and an Animal Organism.—Symbiosis may also occur between plant and animal. For instance, in the marine worm *Convoluta* an alga is always present, and in the larvae of certain aphids and coccids yeasts occur as more or less definite structures.

Importance of Symbiosis in the Nutrition Process of Certain Plants.—Reissek, in 1847, came to the conclusion that fungi were normally present within the cortical cells of the roots of various flowering plants, being best developed in the underground roots of orchids. Soon after, another type of association was noted, especially in forest trees. Here the fungus mycelium forms a sort of mantle around the root, in contrast to being within the cells of the cortex. This association is very common in *Castanea* and *Corylus*. The rootlets so infected generally take a characteristic coralloid appearance. Frank, in 1885, coined the term "mycorrhiza" to denote fungi (including bacteria) in or around the roots of plants. He used the term "endotrophic mycorrhiza" for those forms in which the fungus occurred within the tissues of the host, and the term "ectrophic mycorrhiza" when the fungal mycelium surrounded the rootlets as a sheath.

Fig. 1.—Nodules on rootlets.

The antiquity of such associations is seen in the fact that they occur in fossil plants such as *Rhynia, Hornea* and *Asteroxylon* from the Lower (or Middle) Devonian. Weiss, in 1906, recorded mycorrhiza in fossil roots from the lower coal measures, for which he suggested the name "mycorrhizonium."

A well known instance of symbiosis is represented by the nodules found in the roots of many leguminous plants. For many years it was noted that roots of leguminous plants such as peas and clover presented a large number of nodules or tubercles which were for a long time considered to be normal morphologic features of such plants. Later it was found that these nodules are formed by the presence of a bacillus (*B. radicola*). This bacillus is apparently always present in the soil; the bacillus enters through a root-hair, and reaches the interior of the cortex and begins multiplying there, producing the nodular outgrowths. The organism feeds and grows principally on the carbohydrates (sugars, etc.) supplied by the host plant, these having been produced as the result of the photosynthetic activity of plant leaves. The bacillus is therefore supplied by the plant with carbohydrate food, but the bacillus in return supplies the plant with the nitrogenous compounds necessary for the production of protoplasm, by utilizing the free nitrogen of the air.

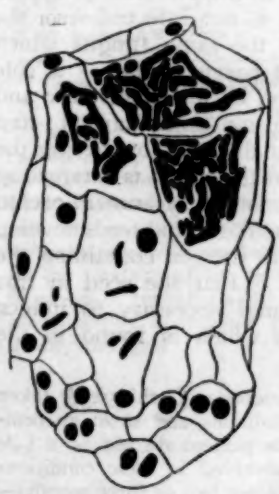

Fig. 2.—Section of nodule, showing bacilli.

Most plants have to take their nitrogen in a combined form, as ammonium salts or nitrates, as nitrogen is a very inert element and difficult to force into combination with other elements. *B. radicola* is one of the very few organisms that can perform this really stupendous

* Read before the Section on Pathology and Physiology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

work, provided it is supplied with the means of obtaining the energy required for the process in the form of appropriate carbohydrate nutrition. There cannot be any doubt about the facts, for the bacillus will do the same thing when cultivated outside the plant under strict experimental conditions.

After the bacilli have thriven for a while, mainly at the expense of the food supplied by the root in which they are living and multiplying, many of the individuals become weaker and undergo a sort of degeneration, while a few pass into a resting stage, in which they become highly resistant to adverse conditions of life. The leguminous plant, which hitherto has been giving out carbohydrate food to the bacillus, now begins to receive: it receives from the degenerated mass of bacilli the stores of nitrogenous matter they have accumulated, and this is a very good return for the sugars which it had previously expended. The comparatively few surviving bacilli serve to infect the soil—as the roots gradually rot—and then they are enabled to attack the roots of new leguminous plants. It may be said that the plants acquire a costly food, nitrogen, in exchange for a cheap one.

Higher Plants.—The phenomena of symbiosis between root and fungi occur also in many plants higher than the leguminous, for instance, in forest trees. In these trees the fungus mycelium forms a sort of mantle round the root, in contrast to being inside the cells of the cortex. The association is very common in *Castanea* and *Coryeus*, as already noted, the rootlets so infected generally taking a characteristic coralloid appearance.

IMPORTANCE OF SYMBIOSIS IN THE PHENOMENA OF REPRODUCTION

Germination of Seeds.—Noel Bernard, in 1902, proved experimentally that certain seeds, as the seeds of orchids, can germinate only in the presence of appropriate fungi. If the seedling is not infected with the appropriate fungus, generally the same fungus which infects the roots of the adult parent plant, as a rule germination will not take place, or it will be slow and imperfect. To the same conclusion came Burgeff: that orchid seeds germinate without difficulty on having the appropriate fungus supplied to them. It is interesting to note that before this was scientifically known, orchid growers had found out that to make orchid seeds develop it was necessary to sow them in the soil containing the parent plant; the explanation is that the seed in this way got infected with the fungi necessary to induce germination; viz., the fungus which is found in the roots of orchids.

A few more details may be of interest: Orchid seeds taken from the capsule under sterile conditions and sown on ordinary substrata where no fungus is present do not as a rule develop. The only phenomenon observed in these conditions is that usually the seeds swell and after two or three months—after the reserve food, which is oil, part of which becomes transformed into starch, has been exhausted—become green and soon after die, unless the fungus infestation takes place. At first it seems peculiar that the seeds should die after the production of chlorophyl; one would rather expect that autonomous growth by acid of photosynthesis should take place; as Ramsbottom [1] aptly put it, it appears that the seedling forms chlorophyl as a sort of last despairing effort.

IMPORTANCE OF SYMBIOSIS IN FERMENTATION PHENOMENA

Transformation of Simple Acid Fermentation into Fermentation with Production of Gas.—During the years 1904 and 1905, while in the East and in London on leave, I became interested in the study of bakers' yeast and in fermentation caused by yeast. I made the following observations, mentioned at meetings of the Ceylon Branch of the British Medical Association:

1. Bakers' yeast, both in the East and in London, is not a pure culture of a single species of yeast. It is generally composed of two or more species of yeast plus one or two or several species of bacteria. The bacteria isolated from samples of yeast in the East and in London do not produce gas fermentation in sugars—they produce simple acidity (lactic acid fermentation).

2. Comparing the fermentation reaction of bakers' yeast used in toto as obtained from the bakers, sowing the particles of the sample in the various sugars, with the fermentation reactions of the isolated pure cultures of the different species of *Saccharomyces* and bacteria composing the sample, I found that the yeast in toto ferments a much larger number of carbohydrates than any one of the saccharomyces and bacteria composing the sample. In this country I may say that all the samples of yeast I have examined contain one or more gas-forming bacilli.

3. By mixing artificially all the organisms isolated from the sample of yeast, in certain cases the same fermentation reactions are obtained as with the yeast in toto. There are apparent exceptions, as shown by the following example. From Orphington, a place in the country near London, I obtained in 1919 a sample of bakers' yeast which gas fermented a very large number of carbon compounds, including starch. I investigated the sample mycologically by plating on maltose and glucose agar, etc., and I isolated and grew in pure cultures what I believed to be all the organisms, *Saccharomyces* and bacteria, found in that sample. By mixing all the pure cultures I obtained the same fermentation reactions as with the sample of yeast in toto, except that the mixture did not touch starch. The experiment was repeated many times with the same result, until finally I had recourse to the following procedure: The surface of the glucose agar plates on which a minute particle of the yeast-cake had been plated out was washed with a little peptone water, and the washing inoculated into starch. Fermentation of starch took place, the inference being that probably some very minute colonies on the verge of invisibility had escaped my notice when investigating the plates and picking out all the colonies present; the thought came to me also that there might be an ultramicroscopic germ present.

4. By mixing artificially a nonmaltose fermenting *Saccharomyces* (isolated from a sample of bakers' yeast) with a bacillus isolated from the same sample, producing acidity in maltose and several other sugars, but never gas in any substance, I obtained fermentation of maltose with production of gas.

In recent years I have studied the same and similar phenomena, using mostly pathogenic bacteria; bacilli and cocci, also a pathogenic yeast. In the present paper I will limit myself to give the results of experiments—a number of them already published—with the following organisms:

(*a*) Bacilli: *B. typhosus, B. dysenteriae* Flexner, *B. morgani, B. proteus,* strain P, *B. coli-communior, B. kandiensis, B. vermiculoides.*

(*b*) Cocci: *Staphylococcus aureus,* two strains of *Streptococcus pyogenes.*

(*c*) Yeast: *Cryptococcus graciloides.*

1. Ramsbottom, T.: Orchid Mycorrhiza, Charlesworth Catalogue, 1922.

The strain of *B. typhosus* was isolated from a case of typhoid fever, and shows all the typical serologic reactions and biochemical characteristics of the typhoid bacillus; it is very highly agglutinated by typhoid serum; it does not produce gas in any carbohydrate; it produces acidity in glucose, levulose, maltose, galactose, mannitol, dextrin and sorbite.

The strain of *B. morgani* was isolated from a stool; it is motile; it produces acidity and gas in glucose, levulose and galactose, but neither acidity nor gas in any other sugar. In this paper I will refer to it as strain S.

The strain of *B. dysenteriae* Flexner is serologically and biochemically typical; it produces acidity in mannitol. It was obtained from the Lister Institute.

The strain of *B. proteus* was isolated from a case of enteritis; it is motile and liquefies gelatin and serum rapidly; it produces acidity and gas in glucose, levulose, galactose, saccharose and glycerol; it produces neither acidity nor gas in lactose, dulcitol, mannitol, maltose, dextrin, adonite, inulin, sorbite, inosite, salicin, amygdalin, isodulcitol or erythrite. As I have stated in other publications, the term proteus covers a group of closely allied bacilli and not one species only. The strain I have used is very similar to the variety which I called paradiffluens.[2] In this paper I will denote it as *B. proteus* (P).

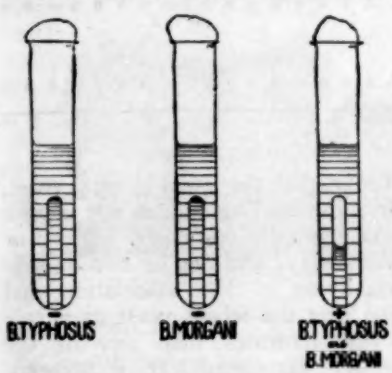

Fig. 3.—Fermentation of B. typhosus and B. morgani.

B. kandiensis is an intestinal bacillus somewhat related to *B. typhosus;* it is motile and does not produce gas in any sugar; it produces acidity in glucose, levulose, galactose, mannitol, adonite, inosite, isodulcite and erythrite; it does not clot milk; it does not produce indol. There is a variety producing indol (kandiensoides).

The strain of *B. coli-communior* produces gas in many sugars, including saccharose, but does not produce either acidity or gas in adonite.

The strain of *Staphylococcus aureus* was isolated at the Ross Institute, London.

The two strains of *Streptococcus pyogenes* were obtained from the Laboratories of Public Health, London.

B. vermiculoides and *Cryptococcus graciloides* were isolated from two cases of stomatitis cryptococcobacillaris in Central America.

RESULTS OF TESTS

B. TYPHOSUS AND B. MORGANI

Action on Maltose.—B. typhosus alone produces acidity, never gas. *B. morgani* alone has no action whatever on maltose; it produces neither acidity nor gas. If a tube of maltose peptone water is inoculated, however, with *B. typhosus* and immediately after with *B. morgani* and placed in the incubator at 35 or 37 C. for forty-eight hours, not only will acidity be produced, but also a large amount of gas. The same result is obtained if the two bacilli are previously mixed in plain peptone water and the peptone water mixture inoculated in tubes of maltose. The same result is also obtained if *B. morgani* is added to *B. typhosus* twenty-four hours after inoculating with *B. typhosus;* if the interval is more than twenty-four hours, then the production of gas is not so constant.

When the two bacilli *B. typhosus* and *B. morgani* live naturally in close association, the same phenomenon takes place, as shown by the following observation, which I related in one of my previous papers: The stool of a suspected typhoid patient was examined bacteriologically in London, McConkey's medium plates being used. An exceptionally large number of white colonies developed; fifteen were picked out and further investigated by replating, etc. Twelve of them consisted of two organisms—*B. typhosus* and *B. morgani;* three of *B. morgani* alone. The mixed cultures derived from the colonies containing only *B. morgani* had no action whatever on that sugar. Mixed cultures obtained artificially by inoculating agar tubes with both *E. typhosus* and *B. morgani* behave in the same manner—namely, when a loopful of the mixed growth is inoculated into a maltose peptone water tube, acid and gas are produced.

Action on Mannitol.—As is well known, *B. typhosus* produces acidity only in mannitol, never gas; *B. morgani* has no action—no acidity or gas is produced. The mixture *B. typhosus* and *B. morgani* produces acidity and gas.

Action on Sorbite.—B. typhosus alone produces acidity, never gas, in sorbite; *B. morgani* alone has no action whatever on sorbite; it produces neither acidity nor gas. The mixture *B. typhosus* and *B. morgani* produces acidity and gas.

Action on Other Carbon Compounds.—The reactions are seen at a glance in Table 1, in which the fermentative characters are given of *B. typhosus* alone, *B. morgani* alone, and the mixture of *B. typhosus* and *B. morgani.*

TABLE 1.—*Fermentative Characters of B. Typhosus and B. Morgani* *

	Lactose	Saccharose	Glucose	Levulose	Maltose	Galactose	Mannitol	Sorbite
B. typhosus	0	0	A	A	A	A	A	A
B. morgani	0	0	AG	AG	0	AG	0	0
B. typhosus and B. morgani	0	0	AG	AG	AG	AG	AG	AG

* 0, negative, neither acid nor gas; A, acid; G, gas.

From the table it is seen that certain sugars and other carbon compounds, which when acted on by *B. typhosus* alone undergo a simple acid fermentation, and when acted on by *B. morgani* alone do not undergo any fermentation, neither acid nor gas being produced, are susceptible of undergoing fermentation with production of gas when they are acted on by the mixture of the two bacilli. In the carbon compounds in which *B. typhosus* alone produces no acidity and *B. morgani* alone neither acidity nor gas, their mixture produces neither acidity nor gas.

TABLE 2.—*Fermentative Characters of B. Typhosus and B. Proteus*

	Lactose	Saccharose	Glucose	Levulose	Maltose	Galactose	Mannitol	Sorbite
B. typhosus	0	0	A	A	A	A	A	A
B. proteus (P)	0	0	AG	AG	0	AG	0	0
B. typhosus and B. proteus (P)	0	0	AG	AG	AG	AG	AG	AG

B. TYPHOSUS AND B. PROTEUS

The strain of *B. proteus* used (P), as already stated, has no action on maltose, mannitol or sorbite; it produces neither acidity nor gas in these substances.

Action on Maltose.—B. typhosus alone produces acidity only, never gas; *B. proteus* (P) alone produces neither acidity nor gas; their mixture produces acidity and gas.

2. Castellani and Chalmers: Manual of Tropical Medicine, 1919, p. 943.

Action on Mannitol.—B. typhosus produces acidity, never gas, in this alcohol. *B. proteus* (P) has no action on it; neither acidity nor gas is produced. Their mixture, however, produces acidity and gas.

Action on Sorbite.—B. typhosus produces acidity only; *B. proteus*, neither acidity nor gas; their mixture causes production of acidity and gas.

B. DYSENTERIAE FLEXNER AND B. MORGANI

Action on Mannitol.—B. dysenteriae Flexner produces acidity only, never gas. *B. morgani* has no action on it; neither acidity nor gas is produced. The mixture *B. dysenteriae* and *B. morgani* produces acidity and gas.

Action on Maltose.—B. dysenteriae Flexner produces only acidity, never gas; *B. morgani* produces neither acidity nor gas; their mixture produces acidity and gas.

B. DYSENTERIAE FLEXNER AND B. PROTEUS

Action on Mannitol.—B. dysenteriae Flexner produces acidity, never gas; *B. proteus* (P) produces neither acidity nor gas; their mixture produces acidity and gas.

Action on Maltose.—B. dysenteriae Flexner produces only acidity, never gas; *B. proteus* (P) produces neither acidity nor gas; their mixture produces acidity and gas.

TABLE 3.—*Fermentative Characters of B. Dysenteriae Flexner, B. Morgani and B. Proteus*

	Lactose	Saccharose	Glucose	Levulose	Maltose	Galactose	Mannitol	Sorbite
B. dysenteriae Flexner	0	0	A	A	A	A	A	0
B. morgani	0	0	AG	AG	0	AG	0	0
B. proteus (P)	0	0	AG	AG	0	AG	0	0
B. dysenteriae Flexner and B. morgani	0	0	AG	AG	AG	AG	AG	0
B. dysenteriae Flexner and B. proteus (P)	0	0	AG	AG	AG	AG	AG	0

B. TYPHOSUS, B. MORGANI AND B. PROTEUS

Action on Maltose, Mannitol and Sorbite.—B. typhosus alone produces acidity, no gas. *B. morgani* alone produces neither acidity nor gas. *B. proteus* (P) alone produces neither acidity nor gas. The mixture *B. morgani* and *B. proteus* produces neither acidity nor gas. The mixture of the three germs produces acidity and gas.

B. COLI-COMMUNIOR AND B. KANDIENSIS (VAR. KANDIENSOIDES)

Action on Adonite.—B. coli-communior produces neither acidity nor gas. *B. kandiensis*, acidity only, never gas. The mixture *B. coli-communior* and *B. kandiensis* will produce acidity and gas, although slowly. The tubes must be kept at 37 C. for at least a week.

STAPHYLOCOCCUS AUREUS AND B. MORGANI

Action on Maltose.—Staphylococcus aureus alone (Ross Institute strain) produces acidity, no gas, in maltose; *B. morgani* alone produces neither acidity nor gas. The mixture *Staphylococcus aureus* and *B. morgani* produces acidity and gas.

STAPHYLOCOCCUS AUREUS AND B. PROTEUS

Action on Maltose.—Staphylococcus aureus alone (Ross Institute strain) produces acidity, no gas, in maltose; *B. proteus* alone produces neither acidity nor gas. The mixture *Staphylococcus aureus* and *B. proteus* produces acidity and gas.

STREPTOCOCCUS PYOGENES AND B. MORGANI

Action on Maltose.—Streptococcus pyogenes (strain Public Health Laboratory, London) alone produces acidity, no gas; *B. morgani* produces neither acidity nor gas. The mixture *Streptococcus pyogenes* and *B. morgani* produces acidity and gas, but it may take eight or ten days at 37 C. before the gas appears.

STREPTOCOCCUS PYOGENES AND B. PROTEUS

Action in Maltose.—Streptococcus pyogenes (strain Public Health Laboratory, London) alone produces acidity, no gas; *B. proteus* produces neither acidity nor gas. The mixture *Streptococcus pyogenes* and *B. proteus* produces acidity and gas, but it may take eight or ten days at 37 C. before the gas appears.

BACILLUS VERMICULOIDES AND CRYPTOCOCCUS GRACILOIDES

Bacillus Vermiculoides and Cryptococcus Graciloides.—These two organisms live apparently in symbiosis, and it took me more than a year to separate them. The symbiotic mixture produces, though very slowly, gas in glucose, levulose and maltose. The cryptococcus alone does not produce either acid or gas; the bacillus alone produces acidity only.

TABLE 4.—*Fermentative Characters of B. Vermiculoides and Cryptococcus Graciloides*

	Lactose	Glucose	Levulose	Maltose	Galactose	Saccharose	Mannitol	Dulcite	Salicin	Inosite	Dextrin	Inulin	Sorbite	Adonite	Arabinose	Raffinose	Isodulcite	Erythrite	Glycerin	Gelatin
Cryptococcus gracilloides Castellani	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bacillus vermiculoides Castellani	A	A	A	A	A	0	0	0	0	0	0	0	0 or A v. S	0	0	0	0	0	0	0
Cryptococcus gracilloides and B. vermiculoides	A	AG	AG	AG	A	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SUMMARY AND CONCLUSIONS

Some years ago I found that the usual bakers' yeast, as obtainable in Ceylon and in England, is not a pure culture of yeast, but is generally composed of two or more species of *Saccharomyces* and one or two or several species of bacteria living in close association, and I made the observation that the whole yeast as a rule gas-fermented more carbohydrates than any of the isolated germs did, either *Saccharomyces* or bacteria. I found also that a bacillus (isolated from a sample of yeast) which produced only acidity, not gas, in maltose, would produce gas when I added to it a saccharomyces which was inactive on maltose and was isolated from the same sample.

In recent years I have used for my experiments mostly pathogenic bacteria and also a pathogenic yeast, *Cryptococcus graciloides*.

Simple acid fermentation of certain carbon compounds caused by micro-organisms that never produce gas may in a number of instances be transformed into fermentation with the production of gas by adding a micro-organism which, alone, is inert; viz., produces neither acidity nor gas on those particular carbon compounds. For example: *B. dysenteriae* Flexner produces acidity, never gas, in maltose and mannitol; *B. morgani* produces neither acidity nor gas in those two carbohydrates; the mixture *B. dysenteriae* Flexner and *B. morgani* produces, however, acidity and gas. For the phenomenon to take place, several conditions are necessary: the most important one seems to be that the added bacillus, though inert on those particular carbon compounds, must be capable of producing fermentation with gas in glucose.

IMPORTANCE OF CLOSE ASSOCIATION OF TWO ORGANISMS IN ETIOLOGY OF CERTAIN DISEASES AND CAUSATION OF CERTAIN SYMPTOMS

The whole trend of scientific medicine since Pasteur and Koch has been toward the mono-etiology of disease

—one disease, one specific germ. Few of us medical men ever give a thought to the possibility that certain diseases may be caused by the association of two organisms, neither of which alone is capable of producing the condition. Do diseases of this type really exist? One such disease has been known for years, viz., Plaut-Vincent's angina, caused by the association of two germs, a spirochete and the fusiform bacillus; but objections have been brought forward against the condition being of true symbiotic origin. Certain authors, with whom I do not agree, consider that the two so-called organisms are different stages of the development of the same germ. Another objection of greater weight to the true symbiotic origin of the malady is that, according to certain observers, there are cases in which only the spirochete or only *B. fusiformis* is present. A third objection is that in every case of so-called Plaut-Vincent's angina, a very large number of cocci are present: it is not, therefore, merely a symbiosis between a spirochete and the fusiform bacillus.

I venture to say that I am in a position to bring forward three examples of disease in which a symbiosis, or close association of two organisms, is apparently the true cause. These three diseases are of very little

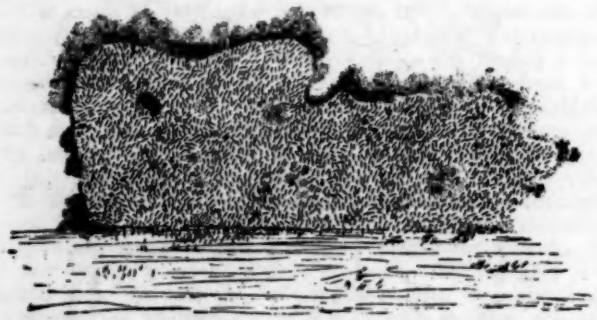

Fig. 4.—Trichomycosis nigra, showing masses of bacillary hyphae of Nocardia tenuis and masses of black pigment producing coccus.

importance from a practical point of view, but I think they are interesting from a scientific standpoint. These conditions are:

1. Trichomycosis nigra.
2. Trichomycosis rubra.
3. Stomatitis cryptococcobacillaris.

Trichomycosis nigra is a disease of the hair of the axillary and pubic regions, characterized by the presence on the shaft of the hair of small, jet black nodules. The microscopic examination of these nodules shows that they are composed of enormous numbers of bacillary bodies of a fungus (*Nocardia*), which I called *Nocardia tenuis,* and large numbers of a black pigment-producing coccal organism, *Micrococcus nigrescens* Castellani. We have here, therefore, an association between a fungus, *Nocardia,* and a coccus. The fungus alone does not produce tinea nigra; it has no pigment. When the fungus is present alone, the nodules are yellow (trichomycosis flava leptothrix). The micrococcus alone cannot reproduce the disease. I have never seen nodules consisting of the coccus alone; the coccus can be artificially grown; cultures smeared in various ways on the armpits and axillary hairs have never produced the nodular condition. Tinea nigra, therefore, may be considered to be caused by a symbiosis of two organisms, neither of which alone is capable of producing the typical condition.

DESCRIPTION OF NOCARDIA TENUIS

Nocardia tenuis, Castellani, 1912. (Syn.: *Discomyces, Streptothrix, Cohnistreptothrix tenuis,* Castellani, 1912.)

The microscopic examination of the nodules in cleared specimens reveals the presence of enormous numbers of rodlike bodies—the bacilliform hyphae of a nocardia—which are gram-positive, but not acid-fast. If the nodules are kept in alcohol or solution of formaldehyde for several months the fungus apparently loses partially or totally its property of being stainable by Gram's method. The bacillary bodies vary in length from 2 to 8 microns and more; the average breadth is approximately 0.14 to 0.3 micron; they may be straight or slightly bent, very seldom if ever branching; they are fairly closely packed together, and are embedded in a cementing substance, apparently secreted by the fungus. This ground substance is fixed to the cortex of the hair, and a portion of it lies under the cuticle and some of the superficial layers of the cortex. In regard to cultivation, Chalmers and O'Farrell observed some slight growth in hanging drops of equal parts of human serum and physiologic sodium chloride solution. The fungus grew, showing branching forms and coccal forms. The branching was monopodial, and the hyphae were nonseptate. Macfie, in one case, succeeded in cultivating the fungus on ascitic sugar agar, the colonies being very small and translucent.

Micrococcus (Nigrococcus) nigrescens, Castellani, 1911.

This is a gram-positive, rather large, nonmotile coccus, which in certain mediums may take the appearance of a coccobacillus. It produces a black pigment. Sugar mediums are more suitable for the growth of the organism than the ordinary agar.

Sabouraud Maltose Agar.—Colonies appear from twenty-four to forty-eight hours after inoculation. They are roundish, at first white, but after a couple of days the center of each colony turns black, and the pigmentation slowly spreads eccentrically. After a time the colonies may coalesce into a jet-black mass.

Glucose Agar.—The growth is similar to Sabouraud, but slightly less abundant. The black pigmentation develops from the center colonies and slowly spreads toward the periphery.

Levulose Agar.—This is identical to glucose.

Saccharin Agar.—The pigmentation is less pronounced, and does not spread to the whole of the growth.

Raffinose Agar.—The same as saccharin.

Lactose Agar.—Scanty pigmentation.

Alkaline Maltose Agar.—Black pigmentation is well marked, though in many cases it does not extend to the whole of the growth.

Acid Maltose Agar.—Growth is less abundant than on alkaline maltose. Black pigmentation is well marked.

Mannite Agar.—As alkaline maltose.

Inulin.—As alkaline maltose, but pigmentation less pronounced.

Saccharose.—As inulin agar.

Glycerin Agar.—Abundant growth, the whole of which after a time becomes a jet black.

Galactose.—As inulin.

Adonite.—As acid maltose.

Ordinary Agar.—Growth is much less abundant than on most sugar agars, and black pigmentation is less marked.

Serum.—Growth is fairly abundant, but there is only a trace of pigmentation. The medium is not liquefied.

Gelatin.—There is no liquefaction. The growth on the surface shows after a time and some dark pigmentation, but the growth along the stab is white.

Milk.—No change.

Broth.—General turbidity. A thin pellicle is often present. The microscopic examination shows cocci arranged in pairs or irregularly. They do not appear to be capsulated.

Peptone Water.—Some growth at the bottom, while the rest of the tube is clear.

Sugar Broths.—No formation of acid or gas.

Indol.—Most strains produce a trace of indol.

Trichomycosis rubra is a somewhat similar condition to tinea nigra, but the nodules are bright red. The microscopic examination of these nodules shows that

they are composed of a nocardial fungus, identical to that found in tinea nigra, plus a coccal organism present in large numbers and producing a red pigment. The fungus alone produces yellow nodules, never the red pigmentation; the coccus alone produces red pigment, but is not capable of producing the nodules. For the disease to develop, it is apparently necessary to have the two organisms closely associated, and tinea rubra can therefore be considered an example of disease of symbiotic origin.

Micrococcus (rhodococcus) Castellani, Chalmers and O'Farrell, 1913.

This coccus, isolated in 1910 by Castellani from the red variety in Ceylon, and later further investigated in the Sudan and named by Chalmers and O'Farrell, is more difficult to isolate and to grow than the coccus observed in the black type of the affection. It is interesting to note that as a rule it grows better and shows more pigment on ordinary agar than on sugar mediums. It is a round or oval coccus, measuring from about 0.3 to 0.7 micron in diameter. It is separated medianly by a clear central line into two half-moon shaped segments, thus producing a diplococcal appearance. It is colorless and nonmotile, but excretes an amorphous, nongranular lemon chrome-colored pigment. In old cultures another pigment of dark brownish red appears (according to Ridgway's standards this color is madder-brown), but its relationship to the earlier yellow pigment can easily be proved, as demonstrated by Chalmers and O'Farrell, by removing some of it and suspending it in a sufficiency of distilled water, when the fluid at once resembles a similar suspension of the yellow pigment. When, however, this is done in a very small quantity of water, a faint reddish tinge can be observed. The best medium for showing the striking yellow pigment is the potato, when in twenty-four hours the growth assumes that color. The red pigment shows best in the ordinary agar slope, which, when old, exhibits the dark red pigment in the center and the yellow pigment at the sides. The organism is easily stained by all the ordinary staining reagents, and is gram-positive. However, even in preparations showing most of the cocci well colored by Gram's method a few cocci may be seen decolorized, and occasionally one may see cocci with one demilunar segment well stained while the other is completely decolorized. The organism does not appear to have a capsule.

The coccus grows aerobically and also anaerobically. The optimum temperature appears to be 37 C.; it also grows at 20 C. on agar slopes, but not as abundantly as at 37 C., and the pigmentation is much less marked. Its rate of growth depends somewhat on the medium; it grows most quickly on potato, and next best on ordinary glycerin agar. On solid mediums it gives rise to a yellow growth at first, but on most mediums, if kept long enough, some red coloration will subsequently be found. The best medium for the red coloration, as already stated, appears to be ordinary agar slope. With regard to the other agar mediums, it grows well on glucose and maltose agar. Like *M. nigrescens,* it produces neither acid nor gas in glucose, levulose, galactose, arabinose, lactose, saccharose, raffinose, dextrin, inulin, amygdalin, erythrite, adonite, dulcite, isodulcite, mannite, sorbite or inosite. It grows slowly on blood serum, which does not liquefy, and well in broth and peptone water, in which it forms a general turbidity. Gelatin is not liquefied. It does not produce indol.

In agar stabs the growth is confined to the line of puncture and to the formation of a small yellow knob on the surface.

Classification of Micrococcus Castellanii.—Chalmers and O'Farrell have thoroughly investigated this point: "The organism belongs to the family *Coccaceae* (Zopf, emended Migula), and must be grouped with the genus *Micrococcus* (Hallier, 1866, emended Cohn, 1872). In this genus it certainly belongs to those forms which grow well on agar mediums and are gram-positive, and in this division it belongs to the subdivision which produces colors.

"The cocci of this subdivision which possess red coloration are only three in number—*M. roseus* (Baum, 1885), *M. ruber* (Trommsdorff, 1904), and *M. rubidus* (Hefferan). Under the term *M. roseus* (Baum, emended Lehmann and Neumann) are gathered a large number of rose-colored diplococci which are not known to be parasitic, and which produce growths on potato which are limited to the streaks. These growths are faint rose color with an oily luster and are often surrounded by a whitish glistening zone, thus giving rise to a very different appearance from that produced by *M. castellanii. M. ruber* (Trommsdorff, 1904), or, as it is sometimes named, *M. chromidrogenus-ruber,* is characterized by the fact that it does not grow on potato; its coloring matter is not soluble in water, and when treated by sulphuric acid the red color turns blue-green, while *M. castellanii* does grow on potato and its coloring matter is unaffected by 25 per cent sulphuric acid; it appears to be closely related to *M. roseus* var. *carneus,* and to be nonparasitic."

STOMATITIS CRYPTOCOCCOBACILLARIS

The appearance of the lesions is quite different from thrush. The patches, which are generally of large dimensions, are hardly raised at all, and are not cream-white; they have the appearance of a thin translucid whitish film covering parts of the oral mucosa, occasionally giving the impression of being patches of incipient diffused leukoplakia; but the microscopic examination of scrapings will clear the diagnosis. The first two cases of this stomatitis I observed in Central America; very recently I have seen a case of the same,

Fig. 5.—Cryptococcus graciloides and B. vermiculoides in symbiosis.

or of a very similar, condition in England; but the investigation of this case has not yet been completed.

From these cases of stomatitis, the first two in Central America, clinically totally different from thrush, I have isolated a fungus and a bacillus which apparently live in symbiosis, both in the lesions and in the cultures. In glucose agar cultures a number of minute, almost streptococcus-like colonies will be seen. The microscopic examination of any of these colonies will show presence of both the delicate yeastlike fungus and the bacillus. For many months I did not succeed in separating the two organisms by plating and various other devices. I noticed that a high temperature (37 C.) increased the growth of the bacillus, while a low temperature was somewhat unfavorable to it. I noticed also that in McConkey lactose agar tubes, the fungus had a tendency to become more scanty. Making use of these two observations by repeatedly inoculating McConkey lactose agar tubes and keeping some of them at 37 C., others at from 15 to 22 C., I succeeded finally in separating the two organisms, of which I will give here a brief description:

A. *Yeastlike Fungus (Cryptococcus graciloides* n. sp.).—Very delicate yeastlike organism, gram-positive, not acid-fast. Each cell is roundish, or more often oval, with frequently a

flasklike shape. In preparations from the cultures, the average maximum longitudinal diameter of most cells is from 3 to 4.5 microns, and the maximum average transverse diameter is from 2 to 3 microns.

Cultural and Biochemical Characters.—Glucose Agar: Minute colonies somewhat streptococcus-like.

McConkey Lactose Agar: Minute colonies, but growth often more abundant than on glucose agar.

Gelatin and Serum: Growth exceedingly scanty; neither of the mediums is liquified.

Lead Agar: No evident darkening of the medium.

Glucose and Other Sugar Peptone Waters: Apparently no production of acidity or gas, but the organism grows extremely scantily in these mediums, and sometimes no growth at all takes place.

Classification of the Organism.—As the fungus is morphologically yeastlike, it comes under the general heading, "Yeastlike Fungi."

This yeastlike fungus never shows presence of asci; mycelium is completely absent; the budding takes place by one budding at a time; the organism does not produce a thick pellicle in fluid-sugar mediums; it should therefore be placed in the genus *Cryptococcus.* The peculiar flasklike appearance often shown by this fungus might be an argument to place it in another genus, the genus *Pityrosporum,* which is said to differ from the genus *Cryptococcus* as follows:

1. The vegetative cells have a flasklike appearance and do not show a well marked double contour.
2. It has not been cultivated.

The genus *Pityrosporum* Sabouraud, 1895, contains two species, *Pityrosporum ovale* Bizzozero, 1882, and *Pityrosporum cantelei* Castellani, 1908. Morphologically the fungus I have isolated is very similar to *P. ovale,* but it differs from it in the fact that it is of smaller dimensions and is cultivable, and, moreover, certain cells may show a double contour. In my opinion the fungus should be placed in the genus *Cryptococcus.*

B. *Bacillus Vermiculoides* n. sp.—This bacillus apparently lives in symbiosis with the *Cryptococcus* I have described; I have separated the two organisms with great difficulty, but I now have the pure cultures of both. The bacillus is of rather large dimensions, its length varying between 2 and 6 microns; it is often curved. It is gram-positive, not acid-fast. The optimum temperature seems to be 37 C., but it may grow, though much less abundantly, at a much lower temperature, 22 C., and even less.

Cultural and Biochemical Characters.—Glucose Agar: Minute colonies somewhat resembling those of a certain streptococcus.

Gelatin: Growth very scanty, or absent altogether; no liquefaction.

Serum: No liquefaction of the medium.

Sugar Peptone Waters: It produces acidity, but no gas in glucose, levulose, maltose, galactose and lactose. There is usually no change in the other sugar-peptone waters.

Litmus Milk: The medium is rendered acid and after a time may become clotted.

Biochemical Reaction of the Associated Organisms.—When sugar mediums are inoculated with a mixed cryptococcus-bacillus culture, acid and gas are produced in glucose and levulose, though very slowly; only acidity in lactose, maltose and galactose; litmus milk is rendered acid and clotted.

RÔLE OF SYMBIOSIS IN CAUSATION OF CERTAIN SYMPTOMS OF DISEASE

Let me remind the reader that I use the term symbiosis *sensu lato;* that is to say, to denote the association of two micro-organisms. There is little doubt that in certain diseases due to specific germs, some so-called typical symptoms are not due to the action of the specific germ per se, but to the action of the specific germ plus a nonspecific germ living in association. Let me bring forth an example such as occurs in everyday practice: scabies. The typical pustular eruption is not caused by the acarus per se; it is caused by pyogenic cocci which apparently find the proper soil to multiply and become virulent on the skin irritated by the acarus; and also the acarus may act as carrier for the pyogenic germs. When persons, such as nurses and surgeons, who wash their hands frequently with disinfectants, become occasionally affected with scabies, pustules are generally absent and the diagnosis may be extremely difficult.

I will mention another condition described and experimentally studied by me some years ago; viz., copra itch. This is a condition found in persons handling copra, and it is caused by a mite present in millions of particles of copra dust. The disease, apart from the presence of burrows, is identical with scabies. The patient complains of terrible itching, and a papulopustular eruption is generally present. The pustular eruption is caused by the pyogenic organisms, not by the mite per se (*Tyroglyphus longior,* var. *Castellanii* Hirst).

Yaws.—In all textbooks the statement is found that one of the typical symptoms is the presence of the large nodules capped by thick, bright yellow crusts. These thick, bright yellow caps are not produced by the specific germ of yaws, *Treponema pertenue,* but by associated pyogenic cocci. If some of the incipient nodules are constantly dressed with mercuric chloride lotion, they enlarge and become the same size as the other nodules, but the yellow crust is practically absent.

Typhoid.—Meteorism, as is well known, is caused to a great extent by defective tone in the walls. According to certain researches I have carried out, however, the great, abnormal distention found in some cases of typhoid may be caused by the association of the typhoid bacillus with other bacilli, especially bacilli of the Morgan group. In two cases in London in which the abnormal distention was extremely marked, the bacteriologic examination of the feces revealed the presence of *B. typhosus* and *B. morgani* closely associated; viz., numerous colonies on McConkey's plates, which seemed to be pure, were composed in reality of the two germs living in symbiosis. Now *B. typhosus* alone produces no gas in any carbon compound, *B. morgani* alone in only a very few; their mixture, in a much larger number.

The Smell of Favus.—The typical smell—so-called mousy smell—found in many cases of favus is well known. From certain experiments that have been carried out, it would appear that it is not due to the fungus of favus directly, but to associated bacteria which find the favorable conditions of growth in the lesions caused by *Achorion.*

CONCLUSIONS

Symbiosis, or the close association of two or more organisms, may play an important rôle in biochemical phenomena and in the causation of certain diseases and certain symptoms of disease. Simple acid fermentation may be apparently transformed into fermentation with production of gas; for example, *B. typhosus* produces acidity, never gas, in maltose, mannitol and sorbite; *B. morgani* produces neither acidity nor gas; the association of *B. typhosus* and *B. morgani* produces acidity and gas.

It seems certain that there are diseases caused by a true symbiosis or association of two organisms, neither of which alone is capable of producing the malady. Trichomycosis rubra, trichomycosis nigra, and stomatitis cryptococcobacillaris are examples of such diseases.

Certain so-called typical symptoms of diseases of which we know the specific organisms are in all probability due not to the specific germ alone but to the

association of the specific germ with one or more nonspecific organisms. The moldy or mousy smell of favus is not caused directly by the fungus, but by associated organisms; the typical honey-yellow crusts of yaws seem to be caused by the pyogenic cocci associated with the specific germ, *Treponema pertenue*. The great abdominal distention in certain cases of typhoid is probably due to defective tone in the walls, but may be caused or increased to a certain extent by the association of certain bacilli, as, for instance, *B. morgani*, to the typhoid bacillus. The typhoid bacillus alone does not produce gas in any carbon compound.

THE SIGNIFICANCE OF ACHLORHYDRIA*

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The first essential, naturally, is to establish the fact that achlorhydria exists. The only reliable proof of this is supplied by fractional gastric analysis. A single extraction of stomach contents will not suffice. The gastric secretion must be watched throughout at least two hours after a test meal, for no free acid may be found at the end of forty-five minutes or one hour and yet may appear later on. No symptoms prove or disprove the existence of achlorhydria. Nothing in the physical examination alone determines the activity of the gastric secretion. Even roentgen-ray reports cannot be depended on to settle this question. Only fractional gastric analysis is conclusive.

Once it is determined that the stomach secretes no free hydrochloric acid, a starting point has been found from which to proceed to a diagnosis. We are then in a position to ask what conditions cause achlorhydria or with what diseases it is commonly associated. We look for other evidence, either in the stomach itself or in other organs more or less remote from it, that may help to fix the responsibility for the failure of the gastric mucous membrane to perform its function properly. Thus gradually by the accumulation of data and the consideration of one possibility after another we reach a definite conclusion, so that at last we are able to name the disease that causes the achlorhydria and proceed intelligently to its treatment.

PERNICIOUS ANEMIA

We should think first of pernicious anemia when achlorhydria is found, for, until it has been eliminated, no other cause deserves consideration. The frequency of the association has long been recognized, and attention has been called to it by many different observers. But gradually the conviction has been reached that this association is not only frequent but constant, so constant that no case can properly be called pernicious anemia if free hydrochloric acid is found in the gastric contents. It is a curious fact that achlorhydria may be found long before the blood picture becomes typical, even for years before that time, so that, over a long period, recurring attacks of gastrointestinal upset, particularly of diarrhea, with constant absence of free hydrochloric acid from stomach contents but without characteristic blood count and smears, may baffle the diagnostician as to their meaning. Finally other symptoms develop, such as progressive weakness, paresthesias in the hands and feet, increasing pallor, and repeated attacks of soreness of the tongue; and sooner or later the peculiar blood count and morphology establish the diagnosis beyond question. On this long continuance of achlorhydria, before other symptoms appear, has been constructed a theory that absence of free hydrochloric acid is the real cause of pernicious anemia. It is suggested that this lack of secretion permits the passage through the stomach into the intestinal canal of organisms such as streptococci or *Bacillus welchii* in such numbers that ultimately they produce their toxin in sufficient quantity to bring about hemolysis and disturbance of blood production. But on the other hand it seems more likely that some toxin, whatever may be its origin, whether produced in the intestinal canal or elsewhere, very early inhibits secretion by the gastric glands, and only later and more slowly affects the structure of the spinal cord, the marrow of the bones and the red blood corpuscles themselves. In other words, it seems probable that achlorhydria, like all the other manifestations of the disease pernicious anemia, is the consequence of some unidentified poison that exerts its influence on the secreting cells in the gastric mucous membrane much sooner than it does on the other structures involved.

Regardless of theories, the point to be remembered is this; whenever persistent achlorhydria is found, one should think first of pernicious anemia present or to come. A careful search should be made for all other evidence to be obtained by history, physical examination, laboratory tests and roentgen-ray reports, before the conclusion is reached that pernicious anemia does not exist. Even then it must be remembered that conclusive symptoms and signs may develop as time goes on, though for months or for years they are absent or indefinite. The truth of the situation can be summed up in this way: When achlorhydria is discovered, one cannot reason from that alone to the conclusion that pernicious anemia has caused it; on the other hand, pernicious anemia cannot be positively diagnosed, no matter what the manifestations are, unless achlorhydria is one of them.

CANCER OF THE STOMACH

Twenty-five or thirty years ago, the value of achlorhydria in the diagnosis of cancer of the stomach was strongly impressed on students. Even today, several of the standard textbooks on medicine continue to lay stress on the frequency with which it occurs in this disease. But as a matter of fact it has about the same importance in the recognition of gastric cancer as has the discovery of a palpable tumor. When achlorhydria is found, cancer of the stomach has progressed so far that this sign is no longer needed for diagnosis. Gradually, as the neoplasm grows, the secretion of free hydrochloric acid decreases. This is due to several factors, but principally to the toxin it produces, which either inhibits or destroys the secreting cells. Another arresting influence is the gastritis gradually induced by retained and decomposing food and by bacteria. But complete anacidity, though it does ultimately occur in nearly all cases, is a late and almost a terminal finding. To conclude, because free hydrochloric acid is found, that the condition cannot be cancer of the stomach, and to consider achlorhydria essential to the diagnosis, is therefore a fatal error.

This does not mean that fractional gastric analysis affords no aid in the recognition of this disease. On the contrary, it gives most valuable information; for it reveals not only decreased secretion of greater or less degree, but also impaired motor power, with a variable

* Read before the Fresno County Medical Society, Fresno, Calif., March 2, 1926.

amount of food retention, and so calls attention to an interference with the two most important functions of the stomach. In every case of chronic gastric disorder, no matter what suspicion has been created by other data, fluoroscopic examination and roentgen-ray films are essential to diagnosis. No reliable conclusion can be reached without them. That gastric secretion persists should not lead to delay in securing whatever information the roentgen ray can give. One should not wait too long about this investigation because absence of free hydrochloric acid, the classic sign so long impressed by the textbooks, has not been discovered as expected.

The truth about the value of achlorhydria in the diagnosis of gastric cancer can be summed up as follows: When, with a more or less prolonged history of indigestion, with loss of weight, strength and color, whatever the physical examination shows, achlorhydria is found after a test meal, this certainly tends to confirm the impression that the underlying pathologic condition is cancer of the stomach. But if with all other conditions the same, fractional gastric analysis shows free hydrochloric acid within normal limits or below normal limits but still present in all extractions after a test meal, this must not be interpreted to mean that cancer is not the cause of the other symptoms and signs. In any event, roentgen-ray films of the stomach afford the final proof; and even though exceptionally they fail to show what is present or seem to show what is not actually present, in the vast majority of cases the information they give is reliable.

CHRONIC GASTRITIS

What is the evidence in a given case to prove that achlorhydria is due to chronic gastritis?

1. The other findings from gastric analysis besides the absence of free hydrochloric acid, particularly the presence of abundant mucus in the fasting contents; the poor trituration after the Ewald test meal; the deficient secretion as shown by the thick, sticky character of the material recovered; frequently, the presence of food fragments from a previous meal, indicating disturbance of motor power as well as of secretion, and at all extractions an excess of mucus, mixed with the food or separate from it. This mucus is the characteristic feature of chronic gastritis, and its persistent association with achlorhydria at each extraction practically makes the diagnosis.

2. The finding in history or physical examination of the factors that produce chronic gastritis. These are: (*a*) habitual indiscretion in the taking of food and drink, as regards quantity, quality, seasoning, temperature, trituration and regularity of meals; (*b*) conditions that produce stasis in the circulation through the gastric walls, such as hepatic cirrhosis or chronic passive congestion from loss of cardiac reserve; (*c*) chronic swallowing of infectious material, of pus and bacteria, from foci in the gums or teeth, particularly from pyorrhea and pyorrheal pockets, or from diseased tonsils or sinus, or from trachea or bronchi. Equally important is the negative evidence when achlorhydria is due to chronic gastritis. The general health is usually well maintained, even though the gastric symptoms are of long duration. There is not the loss of weight and strength and color that characterize cancer; pain after food is exceptional, and roentgen-ray films show no defect in the stomach's contour. On the other hand, the blood changes are never found that characterize pernicious anemia, the progressive asthenia, or the paresthesias in hands and feet. Speaking from the standpoint of achlorhydria, chronic gastritis is a common cause; but, from the standpoint of chronic gastritis, complete absence of free hydrochloric acid is not as common as a reduction of the secretion, in connection with the other peculiarities in the gastric analysis already described.

CHRONIC GALLBLADDER DISEASE

That there is a definite relation between achlorhydria and chronic gallbladder disease was first called to attention by Leva in 1893. Following his observation, numerous others were reported at intervals, most of which are found in German literature. But only during the last decade have systematic investigations been recorded in sufficient number to make a definite conclusion possible. Reviewing these investigations in a paper published in the early part of 1925, von Aldor states that, on the basis of a large number of cases observed in different clinics by different men, it is proved that hypochlorhydria of marked degree or complete achlorhydria occurs in about half the patients who have chronic cholecystitis. In this country the largest number of cases reviewed with reference to this point is in the paper by Blalock, who reports that at the Johns Hopkins Hospital between 1889 and 1924 there were 735 patients operated on for chronic gallbladder disease. In only 206 of these were gastric analyses recorded, but among these, 23 per cent showed achlorhydria. No mention is made of patients with hyposecretion. In the wards of Stanford Hospital during the five years from Jan. 1, 1920, to Jan. 1, 1925, there were eighty-four patients operated on for gallbladder disease, in whom the diagnosis was confirmed by gross and microscopic examination of the gallbladders removed. Among these there were fourteen in whom, for one reason or another, no examination was made of the gastric secretion. But of the remaining seventy, six showed a hypersecretion; twenty-seven, a secretion within normal limits; thirty-one, a hyposecretion of marked degree, and six, a complete achlorhydria, making thirty-seven out of seventy cases in which a great deficiency or absence of secretion was found.

The question next arises, Why should there be any relation between achlorhydria and gallbladder disease? Three different thories have been advanced in explanation:

First, it has been asserted that an activating hormone is produced in the bile tract or in the duodenum that is essential to the stimulation of secretion by the acid-forming cells of the stomach, and that this substance is destroyed by gallbladder disease. But such a hormone has never been definitely demonstrated; gallbladder disease does not always produce achlorhydria, and even after removal of the gallbladder, achlorhydria rarely if ever results. With regard to the last point, an interesting report was published by Dahl-Iversen, in 1924, from the Animal Physiological Institute at Copenhagen, of which Møllgaard is director. He found that in many experiments on dogs, moneys and rabbits, removal of the gallbladder did not seem to modify in any way the secretion of free hydrochloric acid.

The second theory is that achlorhydria is a reflex due to the common innervation of the gallbladder and stomach, so that what impairs the function of one impairs likewise the function of the other. The objections to this are the same as to the hormone theory: that gallbladder disease and achlorhydria or gastric hyposecretion are not inevitable associates, and that even the removal of the gallbladder does not inhibit gastric secretion.

Third, the theory advanced by von Aldor, and the most likely one of all, is that chronic gastritis is associated with a certain proportion of the cases of cholecystitis, and that in these will be found not only achlorhydria but an excess of gastric mucus that constitutes the diagnostic feature. This theory will account also for the cases showing hyposecretion without complete suppression, and will explain why many show no change in secretion, simply because no chronic gastritis coexists. It will also explain the occasional case in which gastric secretion recurs after the diseased gallbladder is removed, because coincidently the gastritis has disappeared. The general impression, however, among all observers throughout the literature reviewed is that if achlorhydria exists before removal of the gallbladder, it persists afterward as well.

SUBACUTE COMBINED DEGENERATION OF THE SPINAL CORD

It is under the title of subacute combined degeneration of the spinal cord that Collier describes in his article in Oxford Medicine the condition commonly known in this country as combined sclerosis of the cord. The symptoms and signs of this disease are exactly the ones that are found so frequently in the course of pernicious anemia and that constitute one of the characteristic features of it. There are subjective sensations, such as tingling, numbness and "pins and needles" feelings in the arms and legs, with minor evidences of loss of power, such as difficulty in buttoning the clothes or in holding a pen for writing, or weakness of the legs and dragging of the feet in walking. It is important to remember, however, that such symptoms as these may occur in a patient whose blood shows no marked anemia, and may progress through all the signs characteristic of locomotor ataxia, even to a fatal issue, without any evidence of pernicious anemia. On the other hand, it is Collier's opinion that this type of anemia does occur ultimately in every case of combined sclerosis, even though the characteristic blood changes may be delayed for years during which the disease of the cord persists. It is interesting to note also that in pernicious anemia, during the periods of remission, no matter whether spontaneous or induced, the evidences of disease in the central nervous system do not improve or change in any way, nor does the achlorhydria disappear.

To come back now to the subject under consideration, it has been discovered recently that practically every case of combined sclerosis of the cord shows achlorhydria. Attention has been called to this point particularly by Hurst of London, who reported, in 1922 and 1923, ten cases under his observation, all of which showed persistent achlorhydria. Vanderhoof has also emphasized that achlorhydria is practically as invariable in patients with combined sclerosis as in those with pernicious anemia, but that the spinal disease may run a long and severe course and even terminate fatally before the definite blood picture of pernicious anemia appears. Woltman says that in only one third of patients with subacute combined sclerosis was pernicious anemia found; but continued observation of these cases over a long period proves that it ultimately develops.

All of this knowledge leads the clinician to be very wary about telling a patient who shows achlorhydria that this is of no importance. As Vanderhoof says, every person whose stomach secretes no free hydrochloric acid has a potential case of subacute combined sclerosis of the cord or of pernicious anemia. This brings us back to the opinion expressed when discussing pernicious anemia, that achlorhydria is the first manifestation of the direful influence of some toxin, acting on the gastric secretory cells, and that this first effect may be the only one for months or years, before finally evidence appears that this same toxin has attacked the central nervous system or the blood forming organs, or both.

NEUROSES

After all that has been said, it is well to recall that the absence of free hydrochloric acid from stomach contents may not always mean pernicious anemia, or malignant disease of the stomach, or chronic inflammation of the gastric mucous membrane, or gallbladder disease, or disease of the spinal cord. For there remains a group of cases in which apparently there is nothing else to explain the achlorhydria except a disturbance of innervation. Such cases have long been described as purely functional. In these the absence of gastric secretion has been said to persist for long periods without disturbance of the patient's general health or digestion, or at most has resulted in temporary spells of greater or less gastric discomfort or in recurring attacks of diarrhea. More seems to depend on whether the motor as well as the secretory function is depressed; for, if motility remains normal, no symptoms usually arise. There are several general nervous conditions with which this suppression of gastric secretion is commonly found associated.

First in frequency comes visceroptosis with neurasthenia, commonly known as Glénard's disease. It is probably not the low position of the stomach that disturbs its secretion, but rather the faulty innervation of its secreting glands. The same deficiency leads to poor motor power, with atony and dilatation, which, more than the absent secretion, causes the disturbed digestion of which these patients complain. Achlorhydria is found in Glénard's disease with sufficient frequency to make it appear probable that it may be a true consequence; but visceroptotic patients are not exempt from pernicious anemia, cancer of the stomach or gallbladder disease, so that one must always be on the alert and must not conclude prematurely that the absence of free hydrochloric acid is fully explained by the gastroptosis or by the accompanying neurasthenia.

Second, neurasthenia without visceroptosis has been charged with the responsibility for achlorhydria, which is then attributed to lack of proper supply of nervous energy to the stomach, even when its position is normal. The history in such a case is one of long-continued overwork, physical or mental or both, or of prolonged emotional disturbance, such as grief, worry or melancholy. But much care needs to be exercised in investigating every other possible cause for achlorhydria, before neurasthenia is accepted as the right one. No one can deny that the relation is possible, but skepticism as to its frequency is not only justifiable but advisable.

Third, hysteria must be kept in mind, particularly that type of it which has been described as anorexia nervosa. These patients usually present other characteristic manifestations besides the ones concerned with digestion, such as disturbances of sensation, of the special senses and of the motor system. When achlorhydria is found in the course of a routine investigation made to explain a dyspepsia, some of these other peculiar symptoms and signs, as well as aerophagia or a globus hystericus, are sufficient to give the clue as to why gastric secretion is absent.

What shall we say about these so-called gastric neuroses? Certainly experience teaches that absent

secretion or marked deficiency of secretion is a much less common consequence of disturbed innervation than is hypersecretion. And if we admit that achlorhydria may be purely functional at the outset, who knows that if it persists it may not lead to changes in the blood or in the spinal cord, because of increased toxins that its absence permits to develop in the intestinal tract? It seems reasonable to conclude at least that achlorhydria never occurs in the normal individual, and that it may be the forerunner of several vital ailments has been positively proved. Can we, therefore, ever regard its discovery with complacency?

The statements in this paper are based largely on personal observations in medical wards during the last twenty years and also on the study of the experience and researches of other men.[1]

Shreve Building.

THE EFFECTS OF AN EXCLUSIVE, LONG-CONTINUED MEAT DIET

BASED ON THE HISTORY, EXPERIENCES AND CLINICAL SURVEY OF VILHJALMUR STEFANSSON, ARCTIC EXPLORER

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The dietetic observations and experiences of Vilhjalmur Stefansson during his career as an arctic explorer are worthy of careful scrutiny by students of nutrition. Because of his contributions, he is entitled to prominence in many departments of science, among them anthropology, geography, geology, oceanography, languages and comparative religions. Whether reading Stefansson's books, attending his lectures, or in private conversation with him, one is impressed not only by his broad knowledge of biology but also by the keenness of his observations and deductions in the domain of metabolism, particularly as applied to the science of practical dietetics. An anthropologist by training, an arctic explorer by choice, he became a student of nutrition by necessity. Perhaps there is no other man living today whose experimental studies have been so well controlled and done on so large a scale. His laboratory was the arctic circle, his experimental subjects human beings, and his experimental material, meat.

This paper reviews the medical history of this unique man. It is hoped that the facts gleaned from the study of his arctic dietetic regimen and body physiology may throw additional light on a subject about which our knowledge is still somewhat vague and controversial; namely, protein metabolism.

During the month of September, 1922, I made a medical survey of Mr. Stefansson. He suggested at that time that the facts elicited from the studies might be of sufficient scientific interest to warrant publication. The present paper represents the work done on him at that time, amplified by a clinical survey of his condition some two years later.

MEDICAL HISTORY

Stefansson's paternal grandfather and grandmother lived to a very old age, the exact figures not being available. His maternal grandfather died young, through drowning, the maternal grandmother living to the age of 90. His father died at 62, his mother being still alive at 82, though blind since 1916. Two sisters and one brother are living and in good health.

He was delicate during childhood. Born one year before a famine, for the greater part of one year he lived mainly on fish. At 10 years of age, he had a severe attack of measles. While in college, he had an attack of mumps. At 14 one tooth was extracted. Two molars were filled in 1906. No further dental trouble occurred until recently. During the winter and spring of 1918, while in the Far North, he had typhoid fever with pneumonia and two attacks of pleurisy, and spent three months in bed. During the first three or four days of the headache and fever, at the onset of the typhoid, he was in camp. He then walked about 40 miles against a blizzard. He was given low caloric feeding until, taking matters in his own hands, he insisted on being hauled by sled about 300 miles from Hersalul Island on the arctic coast of Canada to the Episcopal Hospital at Fort Yukon. During the journey, Mr. Stefansson ate frozen raw fish and later, large meals of caribou meat and fish, sometimes boiled and sometimes raw and slightly frozen. His strength returned as soon as this dietary was adopted. The journey took twenty-seven days, during which time he fully recovered from typhoid and gained 30 pounds (13.6 Kg.).

Out of eleven and one-half years in the polar regions, Mr. Stefansson lived about nine years on a meat diet; that is, meat and water. For at least six years of the nine, he lived entirely without salt. The longest continuous period without food, other than meat, was about nine months.

At the present time, Mr. Stefansson is in excellent health, working intensively in writing books and giving lectures. He travels a great deal, takes practically no exercise and eats anything placed before him, but his tendency is to eat more meat than the average person. Since returning to civilization, he has had a tendency to constipation and has infrequent colds, but is otherwise never ill.

In 1922, when he was 43, he weighed 156 pounds (70.8 Kg.). He was 5 feet 11 inches (180.3 cm.) tall, and well developed and nourished. He looked his years, but no older. The hair was thick and brown with a dry scalp. The face was somewhat asymmetrical. The eyes were normal. The von Graefe, Möbius and Dalrymple signs were not present. The pupils were equal and reacted to light and in accommodation. The ears and nose were normal. The tonsils were medium sized and cryptic, with a slight purulent secretion on aspiration. The teeth, objectively, were in good condition, with healthy gums and normal gingival margins. There was no struma. The posterior cervical glands could not be palpated.

The chest measurements were: inhalation, 37 inches (94 cm.); exhalation, 34½ inches (87 cm.); at rest, 35½ inches (90 cm.). A pea-sized cyst was present on the third rib to the right of the sternum. The lungs were normal throughout to auscultation, palpation and percussion. Fluoroscopy showed peribronchial thickening. The apex beat of the heart was mediad to the left maxillary line; the aortic second beat equaled the pulmonic second; no murmurs were elicited. There was normal response to cardiac functional tests. The pulse was 60, equal, regular, and synchronous. The vessel walls were barely palpable. There was no tremor of the outspread fingers.

The systolic blood pressure was 115 and diastolic, 55, in both arms.

Slight eczema could be seen between the toes, on the right instep and behind the right ear.

The tache cérébral was normal. No dystrophy or cyanosis of the nails was present.

The crines of the abdomen were triangular; the hirci were of the female type. No tenderness or masses were felt.

The liver was not felt, nor was the dulness increased. The spleen was not palpable. The gonads were normal.

The knee jerks were active and equal. The Babinski reflex was negative.

Slight external hemorrhoids were present. The prostate was normal. The spine was straight, with free and painless movements.

Men in the various specialties have examined Stefansson, and reports have been entirely negative. Laboratory examinations of the blood (including morphologic, biologic, and chemical, urine, stool, basal metabolism and kidney function tests were normal.

1. These are recorded in a bibliography which appears in the author's reprints.

The following facts regarding Stefansson's life in the Far North are noteworthy:

1. He spent altogether eleven and one-half years within the arctic circle.
2. He lived for a number of days, totaling nine years, on an exclusive meat diet.
3. He lived for nine successive months on an exclusive meat diet.
4. He reached his maximum weight while subsisting on meat (fish).
5. His sense of physical and mental well being was at its best during that period of his life.
6. He found that the exclusive meat diet worked as well when he was inactive as when active, and as well in hot weather as in cold.
7. Constipation was never present. One month's entire absence from exercise produced neither constipation nor muscular weakness.
8. His hair thickened, and his scalp became healthier.
9. Teeth decay was apparently much less rapid.

Stefansson avers that not a single case of constipation was observed in 600 exclusively meat-eating Eskimos for a period of three years.

COMMENT

Stefansson has remarked in his book "The Friendly Arctic" that unless it is religion there is no field of human thought in which sentiment and prejudice take the place of sound judgment and logical thinking so completely as in dietetics.

His experiences in the Far North should give an intensive stimulus particularly to metabolic inquiry as regards the protein modality. There is an apparent need of a recasting of clinical dietetics based both on his experiences and on the newer knowledge of the rôle of the different sugars reaching the colon in the production of biochemical reactions in the intestinal tract.

Neither Stefansson nor any of his men, so far as we could determine, suffered any ill effects from long continued meat diet.

Stefansson affirms that his observations on the health and longevity of Eskimos led him to the conclusion that the high protein diet has no deleterious effects on their circulation or kidneys. He does feel, however, that the mixed diet to which they have resorted in recent years is making them prematurely old and is producing infirmities in those past middle life similar to those of civilized communities. He considers the prime cause of this to be increase of constipation that has everywhere accompanied the adoption by the Eskimos of imported foods.

I have had two patients who gave a history of living on practically an exclusive meat diet for a period of several years. One of these men was about 45 years of age but looked several years younger. He ate practically nothing but beefsteak three times daily. He boasted of the fact that he never took exercise, and without any previous training could run a hundred yards in twelve seconds, or swim five miles without fatigue. The other man, aged 55, was, when last examined about a year ago, in excellent condition. Neither of these men had symptoms of intestinal toxemia, kidney disease or cardiovascular disorders.

The foregoing data, however inadequate in their scientific check up, can only lead us to question the commonly accepted facts regarding a high protein diet.

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VERTIGO

ITS INCIDENCE IN ENDOCRINE DISORDERS *

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Vertigo is one of the most sudden and distressing symptoms that the human body experiences, yet the location of the cause is still obscure. This in part is due to the intermittent character of its manifestation, and in part to a lack of clarity of definition to the condition to which the patient applies the term vertigo, giddiness or dizziness. While we have been accustomed to regard the symptom as vague and lacking outline, the fact remains that it must be caused by a direct inhibition of the labyrinthine semicircular canals.

The term equilibrium, as applied to the condition of the body, whether at rest or in motion, indicates a state in which all the skeletal muscles are under control of nerve centers, so that they combine, when required, either to resist the effect of gravity or to execute some coordinated motion. The preservation of equilibrium is manifestly of fundamental importance in animal life, and we find, accordingly, several mechanisms sharing in this function. That the motor coordinating centers may act properly, they must receive sensory impressions conveying correct information of the relative position of the body at any given time. The integration of these sensations may be characterized as the sense of equilibrium, and it is probably not going too far to assume that every known sensation contributes to this fund of information. Thus, in ordinary life the contact of the surface of the body with various objects is a common source of information as to our relation with the environment. Again while standing upright, and still more when in motion, the muscular sense is active in appreciating the tension, active or passive, of the muscles. As an example, in the erect position, with the eyes closed, a writing point attached to the head will show that the body sways in a peculiar manner, indicating successive contraction of different groups of muscles.

The founder of the modern theory of the functions of the nonacoustic labyrinth was Flourens,[1] who found that, after lesions or excitation of the semicircular canals in pigeons and mammals, characteristic forced movements were obtained. Therefore, we now recognize that the labyrinth is composed of three distinct sense organs: the cochlea with the organ of Corti, for which the adequate physiologic stimulus consists in sound vibrations; the canals with the cristae acousticae, which are physiologically stimulated by the movements of the head; the vestibular saccules with the maculae, the stimulus of which is the movement of the otoliths, and particularly the variations in the rate of the rectilinear movements, both on the horizontal and on the vertical planes. The cochlea is the organ of hearing; the canals are the organs on which depend the experimentally produced sensations of rotatory and galvanic vertigo, and which normally influence the complicated function of equilibrium by means of obscure sensations: the saccules are the organs on which depend the subconscious sensations that are normally ours of the direction of the line of gravity, and thus of the position of the body in relation to the environment.

* From the Evans Memorial (No. 128-A-74).
* Read before the Section on Laryngology, Otology and Rhinology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Flourens: Recherches expérimentells du système nerveux, Paris, 1842.

Labyrinthine vertigo, whether produced experimentally or pathologically, is always rotatory. It is always associated either with nystagmus or disturbances of equilibrium. The reverse of this statement does not hold, however, as disturbances of equilibrium may occur without vertigo. All forms of vertigo may be associated with nystagmus, but some forms do not necessarily exhibit this relation; i. e., the ocular and muscular forms. We know, however, that when there is a loss of function of two sets of these organs (static labyrinth, eyes or muscles), there will be a relative increase in disturbances of equilibrium and orientation: while a permanent lesion of only one of the three sets of sense organs will eventually be corrected by the other two, perhaps not entirely, but sufficiently so for all practical purposes.

It is clear, then, that the sense of equilibrium is served by various sense organs: a complete discussion of this function would entail a consideration of the whole field of nerve-muscle physiology. There is, however, good reason for believing that there is a special sense organ for determining the position and direction of movement of the head and, by inference, of the whole body. The terminal organ of this sense apparatus of equilibrium is found in the system of semicircular canals of the internal ear.

The present paper offers the results of the investigation into the relative incidence of vertigo in disorders of the endocrine system. The report is based on the analysis of more than 1,100 consecutive cases received at the Evans Memorial Hospital for diagnostic study, all of which presented stigmas of possible endocrine disease. The methods of analysis have been described elsewhere in detail,[2] and in brief may be said to comprise the interpretative collation of results from very thorough and comprehensive clinical and laboratory observations.

Of the more than 1,100 patients examined, 734, or 66 per cent, gave sufficient evidence of deranged metabolic activity to justify the diagnosis of a probable endocrine malfunction, while 377, or 34 per cent, presented a primary pathologic condition that was nonendocrine in origin. The incidence of vertigo as a chief complaint or prominent symptom is not widely different in the two groups, that of endocrine malfunction exhibiting 14.9 per cent positive cases, while the nonendocrine group shows 20.2 per cent. Detailed analysis, however, discloses certain points of interest. The endocrine data are given in table 1.

TABLE 1.—*Observations in Endocrine Group*

Diagnostic Group	Total No.	With Vertigo	Per Cent
Pituitary	320	82	26
Thyroid	145	37	26
Gonad	157	40	25
Unclassified	82	20	24
Suprarenal	12	1	8
Pluriglandular*	18	2	11

* As the result of surgery.

The percentage presenting positive findings is surprisingly uniform, the suprarenal and pluriglandular groups constituting the sole exceptions. Conceivably here the relatively small number of cases in these groups may be the cause of the deviation rather than any intrinsic property of the syndrome. Certainly this is probably true of the so-called pluriglandular group. The consideration of the nonendocrine moiety supplements the foregoing. The allocation of these cases to certain broad diagnostic groups is given in table 2.

Four of the groups given show an incidence identical with that of the important endocrine units. Three of these are conditions in which toxemia is recognized as a major and characteristic feature. The coincidence of the psychoneurotic group is, in my opinion, one more piece of evidence pointing to a probable element of disturbed metabolism in the complex etiology of these conditions. The unpublished observations of this laboratory show numerous other confirmatory correlations. Turning again to the other groups, one finds the cases of lesion of the central nervous system showing almost twice as frequent an incidence as any other group, while the residual cases of nonendocrine pathologic changes might be termed as functional vertigo, these cases arising from stimuli from other organs or from general conditions in the body.

TABLE 2.—*Observations in Nonendocrine Group*

Diagnostic Group	Total No.	With Vertigo	Per Cent
Cardiorenal	59	13	22
Neuroses and psychoses	46	13	28
Syphilis	26	7	27
Focal infections	47	12	26
Lesions of the central nervous system	37	15	41
Miscellaneous	162	16	10

The complex body functions appear to be regulated in no small measure by the organs of internal secretion, a deficiency or an excess of one of these important correlators being able seriously to upset metabolic equilibria. This in part is supposedly controlled by the vegetative nervous system: the vagus or stimulating and the sympathetic or inhibitory system. Therefore, actual derangements of the metabolic processes follow almost any deviation from the normal of health; and, while our knowledge is limited by the paucity of the intermediate steps of the paths of metabolism, we have observed in this study the constancy of a high residual nitrogen, a raised lymphocytosis and an increased eosinophilia. We know also that the functions of the internal organs may be disturbed by toxic substances which act as direct deterrants to metabolism. Thus, in the 10 per cent of the miscellaneous group we may well include cases of toxemia or of disturbed metabolism, as we recognize that the body functions are regulated not alone by nervous influences but also by chemical substances that pass from the tissues directly into the blood stream.

A few cases may serve to illustrate the dependence of presenting symptoms in the metabolic and toxemic cases.

The clinical picture of a pituitary type can be well illustrated by the following case:

Miss C., aged 64, first consulted me for vertigo in 1924. The disturbance developed more than a year before, when the patient was dizzy on awakening at night, remained dizzy and nauseated during the following day, and seemed, at the same time, to lose strength on the right side of the body. There had been subsequent attacks at irregular intervals. She now found herself turning to the right in walking. As a child and young woman, when getting out of bed quickly she would feel faint and very dizzy. The family history was negative except for three uncles with tuberculosis. The patient had had frequent headaches during adolescence and early womanhood; scarlet fever in childhood; an arthritic condition in adolescence; an otitis media at 10 years of age, and tonsillitis several times, until the tonsils were cleanly removed ten years before the time of examination.

2. Rowe, A. W.: Boston M. & S. J. 190:291 (Feb. 21) 1924.

The physical examination showed nothing remarkable: In the urine there was a limited solid elimination and a slightly raised residual nitrogen. The blood was substantially normal, with a slight increase in the leukocytes. The Wassermann reaction was negative. The phenolsulphonphthalein test showed diminished elimination. The alveolar carbon dioxide was normal. The patient's vital capacity was about two thirds of the normal, and she was 22 per cent overweight. The metabolism was —13 per cent; the blood pressure, 150 systolic and 80 diastolic. The eyes showed enlarged blind spots with contracted fields. The roentgen-ray examination of the head was negative. The Bárány test showed the canals hypersensitive but not pathologic. The sugar tolerance was negative to 40 Gm. The diagnosis on these facts was bilobar pituitary failure. Under bilobar medication, the patient has improved and can keep free from vertigo entirely by remaining under medication. The laboratory picture has coincidently resumed normality. Generally, the commonest type of pituitary aberration is hypofunction of the anterior lobe, combined with hyperfunction of the posterior.

The thyroid type might be described by the following case:

L., a man in the early fifties, fatigued easily on the least exertion. He was very nervous and was concerned in many more affairs of life than the ordinary man of his years. He was much underweight for his height and had very little opportunity for any physical exercise. Together with the vertigo, he had a disturbing tinnitus in both ears, which did not seem to lessen under normal conditions. The vertigo came over him in waves and at times was so severe that he was forced to lie down. He was not nauseated, and at times on closing the eyes the head seemed to clear. Then, again, this did not help. Sometimes the vertigo was very indistinct and rather more like giddiness. He felt that his work was much more of a tax to him than formerly, and at times he had much difficulty in concentration. He never had any trouble in navigation, but he did think that he was more short of breath than he was formerly.

The physical examination showed a metabolism of —24 per cent; pulse, 68; temperature, normal. The blood pressure was 108 systolic and 60 diastolic. Otherwise the examination was negative, except that there was a high eosinophilia and the Bárány test showed an active reaction both to the chair and to the caloric test. There was also a high residual nitrogen and a lymphocytosis. The diagnosis was thyroid failure with the hypertension that so frequently becomes manifest in the later stages of this condition. Following thyroid medication he improved very quickly, but as soon as he stopped medication, thinking himself quite cured, the symptoms would reappear with distinct frequency. He found that he had to use the medication as a food rather than as a medicine.

The cardiorenal type might be described by the following case:

Miss S., aged 39, besides her deafness of a catarrhal nature had had sick headaches for ten years; of late they were more severe and at times were accompanied by difficulty with the vision. She also had much pain through the back of the head, streaming into the neck and on to the vertex. Sometimes the severity would be sufficient to cause vomiting. The attacks not only were becoming more frequent, but had an added discomfort of extreme weakness of the limbs, nervousness and mental depression. The patient was at times easily confused, and if she had to hurry she had increased pain in the head and at times was unable to walk straight. The bewilderment extended to dizziness and to vertigo, so that on arising she was liable to fall over backward and on getting out of bed or of a chair had to wait for a second so that she might become accustomed to the new position to avoid toppling over.

The physical examination showed some abnormalities in contour of the chest, with a soft blowing systolic murmur at the apex transmitted to the axilla. The teeth were false, and besides this she showed a scar of a former laparotomy operation. The knee jerks were slightly decreased. The urine showed a low volume with a high specific gravity. There was a trace of albumin, and in the sediment were found an occasional blood disk and granular casts. The nitrogen elimination was low; the balance, however, was entirely normal. The blood showed a marked lymphocytosis and a slight eosinophilia. The Wassermann reaction was negative, while the phenolsulphonphthalein output was low. The alveolar carbon dioxide was normal, the patient was below weight, and the vital capacity was much below normal. The basal metabolism was —4 per cent, but the pulse was rapid and she had a slight elevation of temperature. The blood pressure was 110 systolic and 65 diastolic. General care and treatment helped the patient somewhat, but, of course, the condition is probably incurable.

The psychoneurotic type is well illustrated by the following case:

Mrs. D., aged 33, American born and well educated, had been troubled with headaches since 14 years of age. Associated with the headaches was a soreness externally, easily detected by pressure. Dizziness usually accompanied the headaches, and objects moved at times; then, again, they were stationary. Closing the eyes generally gave relief. Noise of the slightest type seemed to be sufficient to begin the dizzy attacks, and she always preferred to be perfectly quiet. At times there was much throbbing in the temporal region, together with pain in the lower right quadrant of the abdomen, and cold feet and clammy hands. She slept poorly and could neither read nor sew. She had had several children and one miscarriage. Her mother died of diabetes. She said that she had had no previous illnesses, but her general make-up and appearances were those of a person who worried not only about herself but of the misfortunes of others as well.

The physical examination showed infected tonsils and poor teeth. Otherwise there was nothing remarkable. The urine and the blood were normal except for a high residual nitrogen, with elimination and balance good, the blood showing a high white count and 70 per cent hemoglobin and a 4 per cent eosinophilia. The blood was leukoid in character, with 76 per cent neutrophils and 2 per cent myelocytes. The Wassermann reaction was negative; she was 15 per cent overweight. The basal rate was —1 per cent with normal findings, while the Bárány test showed a very active static labyrinth, together with negative roentgenograms of the skull. I might add that we were unable to find any definite appendix disease. Apparently the patient stressed this symptom from the fact that a close friend died from the disease. Again, the patient would seem to lay more stress on the vertigo, when, on changing her thought, the vertigo would be less noticeable. The picture of the neurosis was much different following the removal of the infected teeth, and following the removal of the tonsils, her husband stated that she was much better, although the patient herself was quite diffident as to the results obtained for a long period.

Vertigo is certainly a common symptom in aural practice, much more common, in fact, than one might judge from the voluntary history given by the patient. The average patient can think of vertigo as caused by gastric attacks, a mental association attributable in the first place, no doubt, to the occasional accompanying nausea and vomiting; but an equilibratory disturbance seems too irrelevant in connection with any ear disease.

As to the results that can be obtained in the treatment of vertigo, they will be as various as the character of the lesion causing them. The degree of vertigo is by no means a measure of the gravity of the underlying disease, because we may have a very slight vestibular disorder with most distressing vertigo; we may, on the other hand, have only a mild vertigo with a grave lesion of the central nervous system.

CONCLUSIONS

1. Vertigo is distinctly an aural symptom.
2. The eighth nerve, comparatively invulnerable by injury from without, seems susceptible to toxic agents reaching the ear by the blood or lymph streams.

3. Vertigo in young persons is ordinarily transient and unimportant; vertigo in elderly folk is apt to be recurrent and of serious moment.

4. The only endocrine connection is through a lowered vital function with a concomitant lowered metabolism, emphasizing the fact that vertigo must of necessity be regarded as an end-result of metabolic error.

416 Marlboro Street.

ABSTRACT OF DISCUSSION

DR. E. R. LEWIS, Los Angeles: Dr. Drury has collected data as to the incidence of vertigo in a group of cases termed "endocrine disorders." I do not get much information from this term. It conveys to me about as much as to say that a patient has "a kidney" or "a blood pressure." A more comprehensible analysis of what is meant by "endocrine disorders" is needed before one can make practical application of the findings to the solution of problems presented by persons who are ill. Dr. Drury refers to a difficulty that has come to the attention of all those who have much to do with the study of vertigo. Many use this term interchangeably with dizziness, giddiness, faintness; in my own experience, diplopia, transitory obscuration of vision, and sudden mental confusion have also been described as "vertigo." Some years ago, Cheatle expressed a conviction that turning resulted in what is termed "cerebral confusion"—not a special sensation in the ordinary meaning of the term "special sense." While it is true that vertigo often occurs coincidentally with tinnitus, visual confusion, equilibratory disturbance and other transitory cerebral disturbances, it must be recognized as evidence of special sensing initiated by irritation or stimulation of a special sense tract; and the end organs, nerve tracts and central nervous system sense centers must be regarded as no less a special sense apparatus than those subserving vision or audition. This special sense apparatus enables one to discriminate with respect to direction and increment or decrement of turning movements to which the head is subjected; and, with the cooperation of the deep sense and visual sense, to make suitable body adjustments to turning movements. The study of vertigo requires meticulous care in analyzing the component elements of sensory disturbance entering into the picture. For example, stimulation of a normal vestibular apparatus causes subjective sensation of rotation—vertigo; disturbance of equilibrium—staggering, falling; visual disturbances—nystagmus, blurring; cardiovascular disturbance—pallor, increased pulse rate; gastrointestinal disturbance—nausea, vomiting; glandular disturbance—sweating, sialorrhea, and sympathetic nervous system disturbance—faintness. This general pattern of reaction is touched in on whenever impulses are initiated which traverse the afferent tracts of the vestibular system. The extent to which such impulses traverse this pattern depends on their intensity; their point of entrance into this system makes no difference with respect to the resulting reactions. With this clearly in mind, it is possible to formulate a working concept that will aid in understanding the meaning of vertigo.

DR. DANA W. DRURY, Boston: I believe that in vertigo, as in other ear diseases, every single sign and symptom, whether great or small, should be sought out and given proper evaluation if we are to get the proper picture. Each sign and symptom falls into its place like the pieces of a picture puzzle.

Diabetes.—It must not be forgotten that diabetes indicates a breakdown in the metabolism not only of sugar, but of protein and fat as well. Unfortunately, in clinical work the term diabetes is used to include at least two entirely different conditions, with the result that much confusion prevails. It is often stated that diabetes in the young is a much more serious condition than diabetes in the middle aged and elderly. This, however, does not appear to be strictly true.—MacLean, Hugh: Carbohydrate Metabolism in Health and Disease, *Lancet*, June 12, 1926.

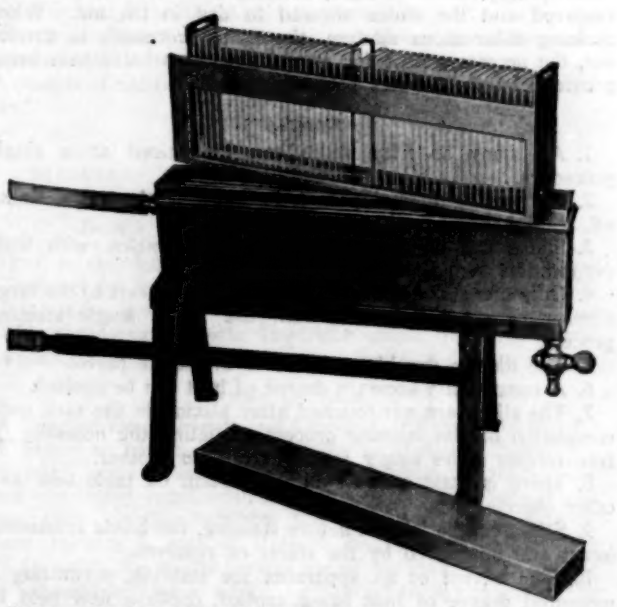
Clinical Notes, Suggestions, and New Instruments

A NEW STAINING DISH*

ROY R. KRACKE, B.S., EMORY UNIVERSITY, GA.

For several years I have been impressed with the need for a method of staining sections of tissue and bacteriologic smears in large quantities. This need is felt particularly in large laboratories where tissue sections are stained for class work, where serial sections are prepared as in departments of histology, pathology and embryology in medical schools, in the laboratories of tuberculosis sanatoriums, and in the larger public health laboratories where staining is carried on extensively.

Prompted by this need, I have designed the dish described here, believing that it will fulfil the need and demand for an article of this nature in that it modifies present staining methods to such an extent that rapid, efficient and economical staining can be carried out to a degree previously impossible with the older methods.



Staining dish for rapid staining of microscopic sections and smears in large quantities; water and gas attached; petcock is for release of stains; underneath is a row of microburners.

APPARATUS

The entire apparatus is constructed in three parts; the support, outside container, and slide rack. The stand is made of rigid black enameled iron with a row of ten microburners which supply an even and adequate distribution of heat to the stain within and is so arranged that the container can be moved forward or backward to facilitate drainage from the outlet petcock on the bottom.

The outer container and slide rack are both constructed of monel metal, which is noncorrosive and extremely durable, insuring long continued usage. The outer container consists of a metal rectangular box of outside dimensions of approximately 1½ by 3 by 10 inches and a capacity of 600 cc. when empty and 400 cc. when filled with slides. At one end near the top is an inlet to which a water hose can be connected, and at the opposite end on the bottom an outlet petcock through which the stain and water can be drained. The bore of the inlet and outlet is of sufficient caliber to insure a rapid inflow and a rapid outflow of stains or reagents, the dish emptying in about twenty seconds with the petcock open fully.

The slide holder fits snugly into the outer container, with sufficient space allowed so that it can be lifted and replaced

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* The staining dish is available at laboratory supply houses.

* From the Department of Bacteriology, Emory University School of Medicine.

easily, facilitating the thorough washing of slides by repeated immersion. It consists of a framework containing fifty slots for that number of slides and a bottom slide rest, the construction being such that the rack filled to its full capacity can be vigorously shaken to remove excess water or stain.

TECHNIC FOR USE

The required number of specimens to be stained are placed within the rack and then placed into the outer container. The first stain to be used is then poured into the end space provided for that purpose, the stain flowing beneath the slides and welling up between them. Sufficient stain is poured in to cover the slides to the highest level of the smears, the upper portion of the slides remaining free from stain.

After the stain has acted for the required time, it is drained back into the stock bottle through the lower petcock. The other stains and reagents are poured in and drained off in a similar manner. Whenever water is indicated in the process, it is allowed to flow in through the upper petcock and drained off; or a continuous flow can be maintained when thorough washing is desired.

After completion of the staining process with tissue sections, they can be removed one by one and mounted; or, if suspected tuberculous sputum is being stained, the entire rack can be removed and the slides allowed to dry in the air. When staining tuberculous sputum, the same procedure is carried out, the necessary heat for steaming with carbolfuchsin being provided by the burners beneath.

ADVANTAGES

1. As many as fifty slides can be stained at a single procedure.
2. By pouring in stain from the stock bottle and draining off, a minimum quantity is used.
3. Stains can always be kept in stock bottles, with little evaporation and deterioration.
4. Only one staining dish is required, in contrast to the large number of containers in current use for a single staining process.
5. The dish is durable and has no breakable parts.
6. A consistently accurate degree of heat can be applied.
7. The slides are not touched after placing in the rack until completion of the staining process, obviating the necessity of transferring slides singly from one dish to another.
8. There is little or no spilling of stain on table tops and other objects.
9. Slides can be labeled before staining, the labels remaining intact and untouched by the stains or reagents.
10. The advent of an apparatus for staining, permitting a measured degree of heat being applied, opens a new field in staining microscopic objects that has hitherto been neglected because of a lack of apparatus facilitating such methods.

AN IMPROVED RECTAL DRESSING PAD AND BINDER*

J. F. MONTAGUE, M.D., NEW YORK

Though it will be granted that the ordinary T-binder is one of the traditions of rectal surgery, frequent employment of it invariably leads to the conclusion that it is not a particularly convenient or efficient device with which to hold in place dressings applied to the perineum. In hospital practice T-binders have to be especially made; and since no two nurses have ever yet made them alike, much lack of uniformity occurs as to proportions, pattern and other details. In private practice they are expensive and often unobtainable. When in use they require pins with which to be fastened, and the latter occasionally spring open and cause much acute distress to the patient. Then too, when the T-binder is fastened in place it not infrequently shows much propensity to shift, thus lessening its efficacy as a dressing binder. Finally, the tails of the binder soon become soiled, necessitating the discarding of the entire T-binder. This, of course, is a matter of inconvenience and considerable expense.

Fig. 1.—Belt of elastic cloth, with slip clasps.

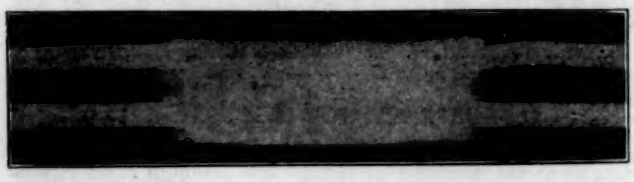

Fig. 2.—Pad of absorbent cotton, with tapes.

To obviate these deficiencies in the T-binder, I devised, and have used with a great deal of satisfaction, the binder described here.

An elastic belt on which are sewed four special slip clasps is the permanent part of the binder. Into the four clasps fit the gauze tapes from a special pad of absorbent cotton, the general form of which is admittedly similar to the familiar sanitary napkin. These pads are cheap, easily obtainable, and may be discarded as soon as soiled. By appropriate tension on the tapes, any degree of pressure desired may be exerted. Shifting is not possible, owing to the position of the four tapes and the manner in which they are fastened. When it is desired to remove the dressing or replace it, a slight slip of the clasp instantly releases the tapes and the pad.

Fig. 3.—Rectal dressing pad and binder.

ADVANTAGES

1. No pins are required.
2. It is economical. Only the soiled pad need be discarded. The belt lasts indefinitely.
3. Shifting of the dressing is not possible.
4. It is quickly attached and quickly detached.

SUGGESTED USES

1. Following any rectal operation or following office treatment of rectal disease.
2. To protect the clothing in cases of draining abscess or fistula.
3. In cases of prolapse, to maintain pressure over the perineum.
4. In cases of colitis or following colon irrigations, to protect the clothing.
5. In scrotal or vulvar affections.
6. In cases of permanent incontinence due to sphincter injury, or in cases of temporary incontinence due to an overdose of liquid petrolatum.

I believe that this dressing pad and binder will be found eminently satisfactory in the instances mentioned. Johnson & Johnson of New Brunswick, N. J., have made the binders I have used to date.

540 Park Avenue.

* From the Rectal Clinic, University and Bellevue Hospital Medical College.

DOUBLE PYOSALPINX IN A CHILD, AGED FIVE YEARS *

GARRY R. BURKE, M.D., SAN JUAN, PORTO RICO

A colored girl, aged 5 years, entered the hospital with her mother, Aug. 1, 1925, complaining of pain in the abdomen, vaginal discharge and fever. The mother stated that the patient had been well and playing until noon four days previously, when she complained of pain in the right side of the abdomen. At the same time she passed five roundworms, and the mother noticed a purulent vaginal discharge for the first time. The pain and the vaginal discharge continued, accompanied by feverishness and obstinate constipation. The mother gave a purgative the day before admission with no result, and an enema the morning of the day of admission, with results. The child did not vomit.

The patient had had measles two months before when seven brothers and sisters and the mother had it. She had been below par for one month at the time. The father was 38, and well; the mother, 36, and well. Eleven brothers and sisters, the youngest 18 months, were all alive and well. One had passed fifty roundworms with chenopodium recently.

On admission, the child was fairly well nourished, and appeared acutely and painfully ill; the temperature was 104 F.; pulse, 128; respiration, 30. She lay with both thighs flexed and with grunting but not labored or rapid respirations. The tongue had a grayish coat. The heart action was rapid (120) and regular. There were no murmurs. The abdomen was slightly distended, symmetrical, and rigid throughout to light palpation, but not completely to heavy continued palpation. There was marked tenderness throughout the abdomen. The liver was palpable at the costal margin. There was a whitish discharge from the vagina. A single sample of urine was amber, acid in reaction, with a specific gravity of 1.025, and negative to tests for albumin and sugar. Blood examination revealed: erythrocytes, 3,500,000; leukocytes, 18,000; hemoglobin, 60 per cent; a differential count revealed: polymorphonuclears, 83 per cent; small mononuclears, 14 per cent; large mononuclears, 2 per cent; transitionals, 1 per cent. In the feces were ova of *Tricocephalus trichiura*. A working diagnosis of ruptured appendix, with peritonitis, was made.

The patient was considered too ill to be operated on, and in the hope that the process would localize was given a rectal drip of tap water, in the modified Fowler's position.

August 6 to 12, the patient had improved slightly, although at times the abdomen would become rigid.

August 14, the vaginal discharge, which had almost disappeared, returned, and a slide, August 15, showed many extracellular and some intracellular gram-negative biscuit-shaped diplococci.

August 17, the vaginal discharge showed many pus cells and scattered intracellular and extracellular gram-negative diplococci.

August 18, pain and rigidity returned, and the temperature rose to 101.

August 19, the temperature was 98, the pulse, 90.

A lower median incision was made under ether anesthesia. The preoperative diagnosis was appendicitis with peritonitis and possibly salpingitis. The intestines were adherent to the parietal peritoneum and to one another. The appendix was in the midline of the abdomen posterior to the bladder; it was greatly inflamed and was adherent to the intestines but had not ruptured. The tip was adherent to the right lateral wall of the pelvis along with the fimbriated end of the right tube, which was thickened and inflamed. While the appendix was being freed, a small cavity in the tube end opened containing a small amount of a white, cheesy pus. The left tube was thickened and inflamed on the fimbriated end and was adherent to the lateral wall of the pelvis. When it was freed, 3 or 4 drops of whitish pus escaped into the culdesac. Enough adhesions were freed to allow appendectomy and double salpingectomy, but no attempt was made to explore the upper part of the abdomen. A rolled rubber tissue drain was put into the posterior culdesac, and the abdomen was closed with plain and chromic catgut—silkworm-gut in the skin and four retention sutures through skin and fascia. The postoperative condition was good.

The patient made an uneventful recovery and was discharged, September 8.

Microscopic examination of the appendix showed evidence of acute inflammation, especially marked in the serosa. There was a thickening of the oviduct wall, with a thickening of and gluing together of the villae and evidence of exudate in the lumen. The proliferation of the connective tissue and the endothelial cells was marked. There was a collection of leukocytes with polymorphonuclears predominating invading the entire tissue in overwhelming numbers. The diagnosis was: acute suppurative salpingitis; periappendicitis.

COMMENT

From the microscopic nature one would assume that the process was primary in the tubes and secondary in the appendix and peritoneum. We considered salpingitis in the preoperative diagnosis, but as the condition is so rare in children we thought appendicitis more likely. The midline incision was made with salpingitis in mind. The tenderness and rigidity were as much on the left as on the right. Richter[1] says: "Salpingitis is rare. At the Cook County Hospital I once saw an abdomen opened up for acute appendicitis in a 9 year old girl in whom there was an acute bilateral salpingitis. Examination of vaginal smears revealed gonococci." This statement was based on 208 cases of appendicitis reviewed by the author from Cook County, Wesley and Mount Sinai hospitals, Chicago.

A search of the titles in the literature disclosed four reported cases.[2]

* Read before the Porto Rico Medical Association, Dec. 20, 1925.

DIABETES: INTENSIVE INSULIN AND OFFICE TREATMENT *

HORACE GRAY, M.D., SANTA BARBARA, CALIF.

Fitz[1] is convinced that many patients are being sent into the hospital for insulin who could be treated just as efficiently and far more economically as outpatients. He has published an illuminating case report. Here is a similar but severer case, in which treatment was somewhat different and more drastic.

REPORT OF CASE

A chauffer, aged 19 years and 4 months, 169 cm. (66.4 inches) tall, began to be fonder of sweets, "a whole lot more than formerly," about Dec. 1, 1924. Two weeks thereafter the onset was rather rapid, with a boil on the neck, nocturia (four times each night), excessive thirst and ravenous appetite. About January 1, loss of strength and cramps in the right calf (possibly due to the greater use of the right leg in driving the automobile) were added to the other symptoms. The maximum weight when the patient was dressed, at the time I first saw him, was 124 pounds (56.2 Kg.), and was 116 pounds (52.6 Kg.) dressed when I next weighed him, about January 7.

Physical examination, Jan. 26, 1925, was negative. The initial urine, four hours after eating, contained 7 per cent sugar, but no diacetic acid. The patient absolutely refused to enter the hospital.

No blood sugar tests were done. At the first visit, he was given a bottle in which to collect the twenty-four hour urine, furnished Joslin's diabetic Manual to study, and sent to the hardware store to buy food scales.

At the second visit, the twenty-four hour amount was found to contain 194 Gm. of sugar. The patient was taught to use his food scales, to measure out a diet of carbohydrate, 34; protein, 15; fat, 30; calories, 466 (Joslin's test diet 3), yielding him about 10 calories per kilogram of body weight.

The next four visits, though spent in diet drill, did not make him sugar free. Insulin was begun by three small but increasing doses.

1. Richter, in Abt's Pediatrics **3**: 568.
2. Chaffey, W. C.: Pyosalpinx in a Child, Tr. Path. Soc. London **36**: 303, 1884-1885. Cheatle, A. H.: Case of Double Pyosalpinx in a Child One Year and Nine Months Old, Lancet **2**: 1098, 1891. Constensoux, G.: Péritonite tuberculeuse consécutive à une double salpingite chez une enfant d'un an, Bull. Soc. anat. de Paris **72**: 859, 1897. Johnson, H. L. E.: A Case of Pyosalpinx in a Young Girl, with Specimens and Remarks on Special Surgical Technic, J. A. M. A. **28**: 639 (April 3) 1897.

* From the Santa Barbara Clinic.

1. Fitz, Reginald: Boston M. & S. J. **192**: 524 (March 19) 1925.

Intensive insulin office treatment was then instituted by having the patient come in after breakfast to spend the day, to have 10 units hourly until aglycosuric. Three such injections were necessary. During the intervals, he was taught in the office laboratory to do the Benedict test. No tremulousness resulted, but at 2 p. m. there were some faintness and hunger, which were relieved in ten minutes by black coffee, without food. Purely to guard against excessive insulin shock, for the patient

Data of a Diabetic Boy Made Sugar-Free in the Office

	Sugar		Diet					
Day and Hour	Per Cent	Gm.	Carbo-hydrate	Pro-tein	Fat	Calo-ries	Weight Dressed, Pounds	Insulin Units
Jan. 26, 1925	7.0	..	..	..	..	....	110	..
Jan. 27-28	5.8	194	..	..	..	....	112	..
Jan. 28-29	4.0	95	..	..	..	....	112	..
Jan. 29-30	3.5	92	..	..	..	....	111	1
Jan. 30-31	2.2	48	44	23	14	294	110	2
Feb. 2- 3	3.5	64	21	19	18	322	108	5
Feb. 4- 5								
8 a. m.	...	..	6	21	20	288	....	..
10 a. m.	1.7	5	..	..	..	....	....	10
11 a. m.	1.9	5	..	..	..	....	....	10
12:30 p. m.	1.5	3	..	..	..	....	....	10
2 p. m.	0.0	0	9	2	0	44	....	..
3 p. m.	0.0	0	..	..	..	....	....	..
4 p. m.	0.0	0	8	2	0	40	....	..
5 p. m.	...	..	13	16	12	200	....	..
From 4 p. m. to 7 a. m.		Lost						
Feb. 5- 6	...	0	84	25	40	796	107	30
Feb. 6- 7	...	0	64	32	64	960	....	12
Feb. 9-10	...	11	80	59	56	1080	114	15
Feb. 15-16	...	0	84	61	94	1426	114	20
June 22-23	...	0	Said to be same				125	16

now understood his management, he was then induced to go into the hospital. The next day, February 5, tremulousness was once sufficient to cause the use of 150 Gm. of orange juice. The second day in the hospital tremulouness was absent, but he was very hungry. The third day, February 7, he felt so well that he was discharged.

Follow-up four months later revealed that he had kept sugar free, gained 11 pounds (5 Kg.), and had been working regularly.

1421 State Street

Special Article

THE TECHNIC OF MEDICATION

A SERIES OF ARTICLES ON THE METHODS OF PRESCRIBING AND PREPARING, THE INDICATIONS FOR, AND THE USES OF VARIOUS MEDICAMENTS *

BERNARD FANTUS, M.D.
Associate Clinical Professor of Medicine, Rush Medical College
CHICAGO

(Continued from page 1983)

VESICAL MEDICATION

Irrigation of the urinary bladder is chiefly of use in cystitis excepting the acute form, in which on account of the distention it may aggravate the pain and distress. In such cases instillations performed as described in connection with instillations into the posterior urethra should be preferred.

For irrigation of the bladder, a soft rubber catheter is fitted by means of a glass pipet, with a 4 foot piece of rubber tubing and a glass funnel. The catheter is introduced into the bladder with all the precautions of asepsis, until the first drops of urine escape; pushing the catheter in farther produces unnecessary pain in sensitive bladders. After the urine has escaped, the tubing is pinched to prevent entrance of air, and the funnel filled with from 100 to 200 cc. of solution, the capacity of the bladder ranging from 175 to 250 cc. The funnel is then raised 2 or 3 feet above the level of the abdomen until the solution flows in. As soon as the patient complains of the distention, the flow is stopped and the solution permitted to remain in the bladder for a little while. It is then allowed to escape by lowering the funnel below the level of the bladder, and then emptying the fluid into a waste pail. This process is repeated two or three times, or until the return fluid indicates that the object aimed at has been attained. Care must be used not to inject any air, as its presence is believed to favor decomposition of urine within the bladder. Overdistention must also be avoided; and it seems that the patient's sensations are, in general, the best criterion of the amount that should be introduced. Some bladders cannot hold more than 10 cc. without distress. It should be remembered, in this connection, that more thorough cleansing is secured by frequent rinsing at one sitting with smaller quantities of fluid than by using larger quantities much less frequently. As long as the urine deposits thick, creamy sediment, irrigations should be repeated once daily; when in cystitis the urine is diffusely cloudy, an irrigation every two or three days generally suffices.

For mere cleansing, from 2 to 3 per cent boric acid solution may be employed. This is most conveniently kept on hand in saturated solution (1:30), and hot sterile water is added to secure the proper temperature (from 95 to 100 F.).

Superior perhaps to most other remedies in chronic cystitis is silver nitrate, from 1:10,000 to 1:1,000, the lower strengths being used first, gradually working up to the higher concentrations. It is most conveniently kept on hand in 10 per cent solution, from 0.1 to 1 cc. of which, added to 100 cc. of distilled water, will make a solution of the proper strength. Usually 500 cc. of fluid suffices for an irrigation. Warming of the solution is necessary only at first; later, room temperature may be employed. As silver nitrate irrigations are often painful, preliminary administration of an analgesic may be desirable for some patients. For very sensitive patients it is better to employ mercuric oxycyanide (1:5,000), which is a painless disinfectant solution; but this is usually by itself not sufficient to cure chronic cystitis. It is best kept on hand in 1 per cent solution, 2 cc. of which to 100 of ordinary water produces a solution of the required strength.

In vesical tuberculosis, silver nitrate irrigation is not well borne. Indeed, no form of local treatment will cure this condition until the primarily affected kidney has been extirpated. However, in preparation for cystoscopy, and after nephrectomy, as well as when nephrectomy is impossible, bladder irrigations are useful. One commences with from 30 to 50 cc. of mercuric chloride (1:10,000), and repeats the irrigations once or twice weekly, gradually raising the quantity to 50 cc., 80 cc. and the strength to 1:5,000. The treatment is painful, but usually secures some improvement. If these mercuric chloride irrigations are too painful, iodoform and guaiacol, each 5 per cent, in liquid petrolatum may be used as analgesic and antiseptic. Of this, 5 cc. may be instilled into the bladder daily.

VAGINAL MEDICATION

The vaginal mucous membrane is one of the less sensitive membranes of the body. Thus, for surgical

* This is the twenty-seventh of a series of articles on "The Technic of Medication." When completed the articles will be assembled in book form.

disinfection, half strength tincture of iodine application, or irrigation with 2 per cent dilution of compound solution of cresol, are admissible. The vaginal mucosa is, however, quite capable of actively absorbing drugs and poisons, as has been shown by Macht.[69] A considerable number of cases of—frequently fatal—poisoning is on record from the insertion into the vagina of mercuric chloride tablets for the prevention of conception.

The fact that the membrane lining the vagina is relatively insensitive, and the erroneous idea that it is invaded by micro-organisms, has led to the application to it of high and even corrosive concentrations of such agents as silver nitrate, alum, zinc sulphate and mercuric chloride. Such treatment is not only unsound theoretically, but positively detrimental. The so-called mucous membrane of the vagina is really a modified skin with a surface of stratified squamous epithelium and devoid of glands. For these reasons it is very resistant to micro-organismal invasion; and, excepting in infants, primary gonococcal vaginitis is very rare. When the normal protective mechanism has been injured by destructive agents that produce desquamation of the surface epithelium, it is much more liable to become involved. The gonococcus invades the urethra and its glands, Bartholin's glands, and the cervical canal with its many crypts and their alkaline secretion, and persists in these. True, the main symptom of some of these conditions is a profuse and persistent "vaginal discharge"; but the successful eradication of this leukorrhea requires correct topical treatment of the affected part. Chemical agents employed in vaginal douches do not reach these, though the hyperemia produced by prolonged douches at as high a temperature as can be borne (hot vaginal irrigation) may have a salutary effect on them.

The tolerance of the vagina to poisons such as quinine or cresol has resulted in the use of the former in the form of suppositories and of the latter as douches for the prevention of conception. Though there is no danger of poisoning of the woman from these measures, Clarence Cook Little points out a hitherto unthought of danger to possible offspring. Zoologists have shown that reproductive cells, such as the sperm, may be injured by physical and chemical agents so as to permit them to still retain their fertilizing power, though impairing their function to such an extent as to give rise to unhealthy and even monstrous offspring, or to individuals who, though otherwise apparently healthy, are deficient in fecundity and even sterile. As none of the chemical preconceptives are 100 per cent certain, the danger that fecundation may take place through a barely surviving spermatozoon, with the possibility of a lifetime of misery to the offspring, should be sufficient to condemn the use of these measures. The fact that apparently healthy children have at times been born in spite of the use of chemical preconceptives does not invalidate this assumption; for the period and the scope of the observations on the human being are much too limited to carry weight against the indisputable evidence readily produced by breeding generations on generations of rapidly proliferating lower organisms.

Vaginal Douches.—The most important vaginal therapeutic measure is the irrigation or douche. The best instrument for the purpose is a "fountain" syringe with a glass nozzle, 5 inches long, the bulbous extremity of which should have small openings at the side, but no opening at the end, for serious disturbance has followed the accidental introduction of douching fluid into the uterus. After use, the nozzle should be washed and kept immersed in a disinfectant solution, such as compound solution of cresol (a tablespoonful to a liter). After bleeding and whenever there are fresh, raw surfaces, as in puerperal cases, scrupulous attention to the details of aseptic technic is required, such as sterilizing the entire apparatus and washing the external genitals with soap and water, followed by 1:2,000 mercuric chloride solution, after the soap has been thoroughly rinsed off, for soap precipitates mercuric chloride. The use of antiseptic douching fluid is also advisable in such cases. These precautions are necessary not only to avoid infection but also to prevent contamination of the discharge and resulting offensive odor.

We must distinguish between (1) simple cleansing douches, (2) hot vaginal irrigation, and (3) medicated douches.

Simple Cleansing Douches: These are employed when there is an increase in vaginal discharge sufficient in amount to be troublesome, but without pain or evidence of inflammation or marked relaxation of the parts; and they are repeated as often as required to keep the parts clean. These douches are not advisable for mere cleanliness in healthy women, as here they are not only unnecessary, but may interfere with the normal germicidal action of the vaginal secretion, which is acid in reaction and serves as an excellent protection against the invasion of the upper genital tract by pathogenic organisms. The simple cleansing douche may be taken by the patient sitting over an ample receiving vessel. The bag filled with the injecting fluid is hung 3 or 4 feet above the level of the seat. The patient inserts the nozzle into the vagina and turns on the stopcock. While the irrigation proceeds, the nozzle should be moved from side to side, withdrawn and pushed up from time to time, so as to secure as thorough an irrigation of all the parts as is possible. More thorough, but likewise more inconvenient, is the douche when the patient is in the recumbent posture, preferably with the hips elevated, for in this position the vagina must become filled with fluid before any of it escapes. The weight of the fluid distends the canal and brings the injection in contract with every point of the surface. The patient can administer the douche in this position herself while lying in an empty bath tub.

Warm water (from 100 to 105 F.) may be employed without any addition, or preferably with a tablespoonful of sodium chloride to each liter of water. Mild acids might be added to the water used for irrigation, thereby imitating "nature's method." Thus, lactic acid (0.5 per cent) has been recommended as a vaginal douche; and it may be that it is not used as much as it deserves. The lactic acid, which is a thick, syrupy fluid, is probably best prescribed diluted with an equal quantity of water. One teaspoonful of this added to 0.5 liter of warm water yields an approximately 0.5 per cent solution. Boric acid is most commonly employed; and most conveniently by dropping a liberal excess (100 Gm.) of crystallized boric acid into a half gallon bottle, shaking it occasionally, and letting it stand. When wanted for a douche, as much of the solution as desired is poured off, and a little hot water is added to warm it. The bottle is then refilled with water. This can be repeated until all the boric acid has been used up, when some more is put into the bottle.

(To be continued)

69. Macht, D. I.: Absorption of Drugs and Poisons Through the Vagina, J. Pharmacol. & Exper. Therap. **10**: 509 (Jan.) 1918.

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SATURDAY, JULY 3, 1926

SHOE DYES AND ANILINE POISONING

A survey of the medical literature, such as was reported a year ago in THE JOURNAL,[1] indicates that serious poisoning with the now widely used shoe dyes is by no means uncommon. The toxic ingredient is the solvent of the pigment and appears to have been nitrobenzene, other aniline derivatives, or even aniline itself. The first cases of intoxication in the United States with the latter as an ingredient of the dye were reported by the Wisconsin state toxicologist.[1] Muehlberger asserts that manufacturers prefer to use nitrobenzene as a solvent because of the fact that it costs only half as much as aniline. The extremely pungent and nauseating odor of nitrobenzene is offensive, and dyes containing it are objectionable to many persons for this reason. The shoe dyes containing aniline are relatively inoffensive in odor, and for this reason are even more insidious, though less toxic, than the preparations containing nitrobenzene. The public should be informed that the odorless dye is also quite toxic. This new menace from aniline, which has entered into larger toxicologic significance with the great development of American chemical industries since the World War, calls for accurate information with regard to the physiologic action of the substance. The current teaching, so far as it is at all explicit, assigns to aniline the rôle of a "blood poison" that brings about disintegration of erythrocytes and the formation of methemoglobin.

A careful study by Young, Muehlberger and Meek[2] of acute aniline poisoning is not in harmony with the explanation cited. They observed that when the chemical is administered, the respiration is slowed or stopped without any previous stimulation. They argue that if death from aniline were due to methemoglobinemia alone, the respiration at some dosage should be stimulated at first, as in any form of anoxemia. Death in such cases is usually cardiac in character. Electrocardiographic examinations demonstrate that aniline has a direct toxic effect on the heart muscle, including the specialized conductive tissue, and in proper dosage produces all types of arrhythmia and heart block. This is an important discovery.

Prompted by this recent information relative to the dangers of shoe dye poisoning, the department of health of Chicago has issued an order banishing all leather dyes containing toxic solvents from sale within the city after March 1, 1927, and demanding the presence on all such dyes of a warning label. This must say that shoes that have been dyed should stand in the open for not less than seventy-two hours after drying before being worn, in order to avoid poisonous effects to the wearer, and also that such dyes must not be used on canvas, satin or other shoes manufactured from fabrics. The department of health is also preparing for posting in every shoe store, shoe repair shop and shoe-shine parlor a placard containing a similar warning. The care of the public health in our times demands constant alertness in applying the discoveries of the laboratory to practical preventive measures.

1. Muehlberger, C. W.: Shoe Dye Poisoning, J. A. M. A. **84**: 1987 (June 27) 1925.
2. Young, A. G.; Muehlberger, C. W., and Meek, W. J.: Toxicological Studies of Acute Aniline Poisoning, I, Experimental Studies of Acute Aniline Poisoning, J. Pharmacol. & Exper. Therap. **27**: 101 (March) 1926.

HYPOGLYCEMIA AND RECURRENT VOMITING

The numerous elaborate studies of the sugar content of the blood that have been made since the discovery of insulin and its physiologic action have indicated that hypoglycemia is a symptom which may in some respects rival its opposite, hyperglycemia, as a manifestation of bodily disorder. How serious this may be is apparent from a description that has been furnished by Macleod.[1] When the blood sugar reaches about 0.075 per cent, it is noted, the patient experiences extreme hunger and a sense of fatigue. He usually becomes anxious and may lose his emotional control. Actual tremor of the musculature is rarely seen, but there is a definite sense of tremulousness and some incoordination for fine movements. According to Banting, Campbell and Fletcher,[2] vasomotor phenomena are common; pallor or flushing, sometimes one after the other; a sense of heat, of chilliness, almost always a profuse sweat. At lower levels of blood sugar, acute mental distress, mental disturbances, delirium and finally coma, with loss of the deep reflexes, supervene.

Not a little effort is being directed to the correlation of untoward manifestations with the state of carbohydrate storage and mobilization. Josephs[3] of the department of pediatrics at Johns Hopkins University has noted that in children some, and in all probability a large, proportion of the attacks of recurrent vomiting

1. Macleod, J. J. R.: Insulin, Physiol. Rev. **4**: 21 (Jan.) 1924.
2. Banting, F. G.; Campbell, W. R., and Fletcher, A. A.: Brit. M. J. **1**: 8 (Jan. 6) 1923.
3. Josephs, Hugh: Recurrent Vomiting, Am. J. Dis. Child. **31**: 657 (May) 1926.

are characterized by hypoglycemia, which develops rapidly and in some instances may reach a considerable degree. Josephs points out that one cannot insist with certainty that a lowered sugar content in the blood is the cause of recurrent vomiting in general. He believes, however, that it is coincident with a considerable number of attacks, and children who give clinical histories of recurrent vomiting in certainly a large number of instances have some peculiarity of carbohydrate metabolism, as the result of which their blood sugar falls more rapidly than normal at the outset of a fast. That such hypoglycemia is responsible for some of the symptoms, such as drowsiness, acetone body excretion and, in severe cases, convulsions, seems to Josephs to be undoubted; that it is responsible for the vomiting is by no means proved.

Considerations of this sort are especially interesting to those clinicians who have followed the successive hypotheses which, during the last few decades, have made claims for recognition as explanations of recurrent vomiting. Among them one finds such familiar items as uric acid diathesis, autointoxication, gastric neurosis, hysteria, chronic appendicitis, postural defect and eyestrain. Without denying the uncertainty that at present attaches to the hypoglycemic factor, it must at any rate be regarded as a sign that can be determined with precision instead of uncertainty. Furthermore, there are admittedly conditions that could readily initiate hypoglycemia in childhood. Fasting, fever and other bodily states that may make undue demands on the carbohydrate reserves are not uncommon to this early period of life. Whether there are specially predisposed persons in whom the outcome is more severe is not yet ascertained. At any rate, hypoglycemia is a symptom that suggests a definite principle of treatment—and this is no small advantage.

FILLING THE PHYSICIAN'S PRESCRIPTION

A generation or more ago it was not uncommon to find a fairly well equipped pharmacy as an adjunct to the physician's consultation room. The doctor then dispensed the drugs required by his patients, whereas the modern practitioner confines himself largely to diagnoses and prescriptions, leaving the compounding of medicines to the neighborhood druggist. Such drugs as are dispensed by the physician himself are for the most part in the form of standardized powders, pills or tablets, which he obtains from pharmaceutic houses that specialize in the preparation of assayed drugs and standardized mixtures. The druggist also, to an increasing extent, procures his medicinal preparations from the same source, so that, theoretically at least, the medicaments that finally reach the patient should be of more nearly standard strength and more uniform quality than was formerly the case.

However great the improvement has been in this respect, the need for official vigilance is still apparent from the reports of various state and federal inspection laboratories. The latest report of the Connecticut Agricultural Experiment Station [1] notes that, of about 300 samples of drugs examined, nearly 30 per cent were substandard or otherwise illegal. An interesting departure from the usual program of inspection is represented by the study of the strength and quality of medicaments obtained on physician's prescriptions. Three simple prescriptions were chosen which called for medicines that permitted accurate assays by approved methods. In the case of a prescription calling for a solution of potassium iodide of definite strength, twenty-seven of fifty-seven samples examined were within 5 per cent of the strength demanded; fifteen were within 10 per cent of that strength, and fourteen varied from the required strength by more than 10 per cent. Of the last named group, the greatest variation was a preparation that was only one fifth of the strength called for. The report observes that on the basis of a liberal tolerance only about 75 per cent of the samples obtained on this prescription can be regarded as satisfactory or passably so.

Again, in the instance of a prescription calling for a solution of arsenous acid of the strength stated in the United States Pharmacopeia, two of twenty-two samples examined were not the article demanded but another preparation of like arsenic content (Fowler's solution); nine varied from the required strength by more than 10 per cent, and ten samples were within 10 per cent of the strength demanded. Thus, only about half of the total number can be regarded as satisfactory. The extremes in this case are represented by one preparation containing only one fiftieth of the amount of arsenic required, and another that contained twice the amount prescribed. The third prescription called for aromatic spirit of ammonia of pharmacopeial standard. Of forty-three samples examined, twenty-five were less than 90 per cent of the required ammoniacal strength.

Examinations of this kind reflect, of course, both the quality of drugs used and the accuracy of compounding them; but the physician and the patient are concerned only with the article as dispensed and not with the probable source of any inaccuracy that may occur. Whether undesirable therapeutic effects would be likely to result from the variations observed may well be doubted in most cases; this is not the import of the inspection. Nevertheless, the single instance of a double dosage of a potent drug is not a matter of small concern. The data presented are limited, and the report properly refrains from any general charges of inefficiency on the part of pharmacists in the compounding of medicines. The facts presented, however, suggest that officials charged with the examination of candidates for admission to the practice of pharmacy should strongly emphasize that the compounding of

1. Bailey, E. M.: Food and Drug Report for 1925, Bull. 276, Connecticut Agr. Expt. Sta., March, 1926.

drugs is a serious business, and those engaging in such practice should be qualified not only as to their knowledge of drugs but also as to their skill in laboratory technic.

Current Comment

ZINC STEARATE INHALATION

A manuscript recently sent to THE JOURNAL gave the experience of a physician called to treat a child who had inhaled quantities of zinc stearate. The physician reported that he had secured a successful result by the administration of ether inhalations, based on the chemical reasoning that ether is a solvent of fatty acid, which is a component of zinc stearate. Before publishing the statement, and in view of the serious nature of zinc stearate asphyxia following accidental aspiration of the powder, it was thought desirable to make certain fundamental investigations. These were undertaken by Dr. Hugh McGuigan of the department of pharmacology and therapeutics of the University of Illinois, at the request of the Committee on Zinc Stearate. Experiments were made with rats, rabbits and dogs, and in no instance was the inhalation of ether successful in relieving the victims after a sufficient amount of zinc stearate had been inhaled to cause marked respiratory embarrassment. Dr. McGuigan concludes that etherization does no harm and that in some instances it may result in relieving irritation caused by the powder. He is, however, convinced that, as far as the animal experiments show, it must be considered wholly as symptomatic treatment, and no more applicable to the treatment of asphyxia from zinc stearate than to that from other causes.

BOOK-LEGGING

The surreptitious selling of books forbidden circulation by law has achieved in the book trade the somewhat opprobrious name of book-legging. Such selling is hardly likely to affect the physician, since there are few, if any, books forbidden to the medical profession. Another method of selling books has, however, just come to light which is distinctly of medical interest and about which it seems desirable to warn readers of THE JOURNAL. A New York publisher has offered for sale by advertisements and through circulars a book by G. A. Sutherland, entitled "Diet and Dietetics." The volume in question was originally published by the Oxford Press in 1908, and had not recently been offered for sale by that publisher. In January, a physician in Ann Arbor, Mich., received a copy of the book from an American publisher, without having ordered it. A few days later a bill was received, which the physician naturally refused to pay. He informed the concern of his unwillingness to keep the book, and was told in reply that he might return it by mail, and if he did not care to do so, that the express company would call for it. In the meantime, the physician inquired of Dr. Sutherland himself concerning his relationship to the issuing of this volume. Dr. Sutherland replied that the book had not been reedited since 1908, and that it was his impression that the American publisher had secured some old copies and inserted a new title page with the date 1925. The value of a book on dietetics issued in 1908, before our present knowledge of vitamins and other food factors, is certainly not great. In view of such selling methods, physicians will do well to inform themselves as to the dates of writing of volumes concerning which they have no exact information. It will be the policy of the advertising pages of THE JOURNAL to refuse advertising space to reissues of such works without a clear statement as to the date on which the books were first published.

ENDEMIC GOITER AND INTELLIGENCE

Sufficient evidence is now at hand to leave no doubt of the widespread incidence of mild adolescent goiter in different parts of this country. While the prevailing conditions are not to be regarded as extremely serious, the fact must be faced that thyroid disturbances of even the milder sorts may be forerunners of more objectionable disturbances. Fortunately, means of easy prophylaxis are now at hand and being instituted in many quarters of the world. There is greater enthusiasm than ever before for child welfare work in every detail of the life of the adolescent boy and girl. According to the statement of a government expert,[1] as the result of the interest arising out of the so-called thyroid surveys there is now a fairly wide impression that simple goiter produces mental subnormality and retardation. This serves to justify the recently completed study of the effect of endemic goiter on the intelligence of school children. The observations, made in the Cincinnati public schools, were concerned primarily with the determination of whether any relationship exists between the size of the thyroid and what has been variously designated as intelligence, brightness or mental alertness. They do not touch on the relationship of such mental conditions as nervousness, emotional disturbance, psychopathic trends or disturbances of personality. The locality selected was favorable in that among nearly four thousand school children in the sixth grade some degree of thyroid enlargement was found in 25.2 per cent of the white boys and 39.6 per cent of the white girls included in the survey. Analysis of chronological age data, indicative of school retardation or advancement, failed to reveal significant variations between thyroid-normal and thyroid-enlarged children. A comparison of the percental ranks of the thyroid normal and the thyroid enlarged failed to show differences of sufficient magnitude to warrant the conclusion that the thyroid normal have a keener mentality than the thyroid enlarged. Children with marked thyroid enlargements were apparently slightly less intelligent on the average than those with normal or slightly enlarged thyroids. However, the number of children with marked thyroid involvement was relatively small, suggesting the desirability of further observations on children with marked thyroid enlargements before drawing conclusions concerning

1. Olesen, Robert; and Fernald, M. R.: Endemic Goiter and Intelligence, Pub. Health Rep. 41:971 (May 21) 1926.

the influence of thyroid size on intelligence. Olesen and Fernald admit that before hard and fast conclusions concerning this interesting subject can be drawn, it is manifestly desirable that similar investigations be undertaken in other parts of the country on a more extensive scale and possibly with different methods. Moreover, such studies might well be conducted in regions of considerable goiter endemicity.

GERMICIDAL PROPERTIES OF SOAPS

The assertion that solutions of soap may exert germicidal effects is credited to Koch.[1] His conclusions have by no means received universal acceptance. A statement of the more customary view of the present time makes the value of soap in disease prevention rest on its cleansing powers and not on its disinfecting properties. According to this conception, soap removes germs mechanically; it does not kill them. The attempts made to fortify the germicidal power of soap by the addition of antiseptic substances have not met widespread favor; with possible exceptions, so-called medicated or disinfecting soaps are regarded as having little or no special value in fighting bacterial contaminations. Lately, however, Walker[2] of the Army and Navy General Hospital at Hot Springs, Ark., has demonstrated that the adverse opinions do not deserve universal application. Thus, soaps are not to be relegated solely to an indirect function. Although they are not to be regarded as general germicides, nevertheless they are destructive to many varieties of microorganisms. For example, according to Walker the thorough washing of the hands with the formation of a good lather will destroy any adhering diphtheria bacilli, streptococci and pneumococci. Any ordinary soap will serve for this purpose. There are microorganisms that seem to be unaffected by the soaps of some of the fatty acids, varying degrees of resistance to the destructive action of soaps being observed. Foreign substances interfere markedly with their germicidal action, so that it would be futile to attempt to disinfect sputum or feces with solutions of soaps. It has been found[2] that the susceptibility of meningococci and gonococci is such that they, too, will readily be killed by any ordinary soap used with a reasonable degree of care. Perhaps we have undervalued some of the virtues of soap in the process of cleansing that the human body, and particularly the hands, often demand.

1. Koch, Robert: Mitt. a. d. k. Gsndhtsamt. **1**: 271, 1881.
2. Walker, J. E.: The Germicidal Properties of Chemically Pure Soaps, J. Infect. Dis. **35**: 557 (Dec.) 1924; The Germicidal Properties of Soap, ibid. **37**: 181 (Aug.) 1925; **38**: 127 (Feb.) 1926.

"Education and the Good Life."—Ignorant adults are unteachable; on such matters as hygiene or diet, for example, they are totally incapable of believing what science has to say. The more a man has learnt, the easier it is for him to learn still more—always assuming that he has not been taught in a spirit of dogmatism. Ignorant people have never been compelled to change their mental habits, and have stiffened into an unchangeable attitude. It is not only that they are credulous where they should be skeptical; it is just as much that they are incredulous where they should be receptive.—Bertrand Russell.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Personal.—Dr. Marion Stark Craig has been reelected city health officer of Batesville.——Mrs. Dewell Gann, Benton, has been elected president of the Women's Auxiliary of the state medical association for the ensuing year, and Mrs. Charles T. Drennen, Hot Springs National Park, president-elect.——Dr. Harry E. Williams, Jr., Pine Bluff, won the state championship in the trapshooting tournament by a score of 196 out of 200.——Dr. Darmon A. Rhinehart, Little Rock, addressed the Crawford County Medical Society, May 27, on "Roentgen-Ray Diagnosis of Gallbladder Disease."

CALIFORNIA

Illegal Practitioners.—The following are abstracts of items received recently from the California State Board of Medical Examiners: W. H. Lockman, Los Angeles, whose license to practice medicine in California was revoked, Feb. 16, 1921, was recently charged with performing an illegal operation in a complaint filed by Deputy District Attorney McIsaac.—— Charles E. Marsh, naturopath, San Diego, whose license was revoked, Feb. 12, 1925, was recently indicted by the county grand jury in connection with the death of Mrs. Louise Giovanazzi following an illegal operation.—— Robert J. McAdory, M.D., formerly of Visalia, recently pleaded guilty to violation of the narcotic law, and was sentenced to ninety days in jail; the sentence was said to have been suspended and Dr. McAdory was committed to the state asylum at Patton.——J. Lafayette Berry, M.D., Pasadena, whose license to practice medicine in California was revoked in 1919, was recently charged with practicing without a license, the complaining witness stating that she paid Berry $200 for removing an alleged cancer from her face. ——Sally Broy, an alleged voodoo doctor of Oakland, was recently charged with practicing medicine without a license; she is said to have made diagnoses by gazing through the thorax by means of a red lantern and muttering weird incantations.——H. H. Heddens, Bakersfield, who is said to have been charged recently with violation of the medical practice act, claimed to have been licensed to practice in New York; the California State Board of Medical Examiners through correspondence has been unable to verify his claim.——Mrs. Christiana Loose recently pleaded guilty to violation of the medical practice act in Oakland and was fined $50; Mrs. Loose was recently acquitted of manslaughter, it is reported, after an operation on Mrs. Charlotte J. Sweet.——Rolley Jamieson, Los Angeles, who was recently charged with violation of the medical practice act, is said to have insisted that a patient disrobe for a physical examination as a part of his treatment; the sign on Jamieson's door read "R. M. Jamieson, President, I. S. S. A., Incorporated, Analytical Psychologist."——W. P. Seibert, who holds a diploma from the notorious and defunct Oriental University, Washington, D. C., recently pleaded guilty in Los Angeles to a charge of violating the medical practice act, and was sentenced to sixty days in jail; Seibert is said to have graduated also from the Los Angeles College of Chiropractic; his sentence was suspended for a period of two years.——Culver R. Spencer, Los Angeles, was recently sentenced to sixty days in jail following a plea of guilty to violation of the medical practice act; the sentence was, however, suspended for a period of two years. Spencer is said to have practiced electrotherapy, hydrotherapy and magnetic treatment in Denver for eight years without any license, coming to California about two years ago; a sign outside his residence reads "Thermo-Magnetic Therapic Treatment."

GEORGIA

State Medical Election.—At the annual meeting of the Medical Association of Georgia, Albany, May 14, Dr. Virgil O. Harvard, Arabi, was elected president; Drs. James A. Redfearn, Albany, and Benjamin H. Minchew, Waycross, vice presidents, and Dr. Allen H. Bunce, Atlanta, secretary. The next annual meeting will be at Athens.

Society News.—Drs. Edward S. Cowles and Burr Ferguson addressed the Fulton County Medical Society, Atlanta, June 2, on "Psychopathology with Special Reference to Medi-

cine" and "Control of White Blood Cells", respectively.——Dr. Frank K. Boland addressed the Fulton County Medical Society, Atlanta, June 17, on "Surgery of the Biliary System"; Dr. William W. Anderson addressed the June 3 meeting on "Pyuria in Infants and Children."——The twenty-sixth annual meeting of the Chattahoochee Valley Medical and Surgical Association will be held at Warm Springs, Ga., July 13-14. The program shows that a large number of papers will be presented, each limited to fifteen minutes, and that among them will be: "Surgical Aspects of Gynecology," Dr. Gilbert F. Douglas, Birmingham, Ala.; "Purpura Hemorrhagica," Dr. Otis D. Gilliam, Columbus, Ga.; "Present Status of Cesarean Section," Dr. Charles H. Richardson, Jr., Macon, Ga.; "Neurology in Private Practice," Dr. Daniel M. Adams, Panama City, Fla., and "Myocardial Insufficiency," Dr. Lisle B. Robinson, Atlanta.

ILLINOIS

Society News.—At the annual basket picnic of the Greene County Medical Society at Coonrod Park, Greenfield, June 11, Dr. John R. Merriman, Springfield, gave an address on "Cause and Treatment of Diabetes."

Hospital News.—A drive has been started to raise $75,000 for a community hospital in Libertyville.——The new 300-bed hospital building for St. Mary's Hospital, East St. Louis, was expected to be ready for occupancy, July 1.

Personal.—Dr. Robert H. Jacobs, after eleven years on the staff of the Illinois Soldiers' and Sailors' Home, Quincy, and two years at the Jacksonville State Hospital, has left the state service to engage in general practice at Metropolis.——Dr. Arthur M. Aszmann, East St. Louis, has been elected a director of the Illinois Trapshoot Association.

Chicago

Dr. Webster Honored.—Dr. J. Clarence Webster, Shediac N. B., formerly professor and head of the department of obstetrics and gynecology at Rush Medical College, received the honorary degree of doctor of laws at the recent commencement exercises of Dalhousie University, in recognition, the *Canadian Medical Association Journal* says, of his work in forwarding the interests of education and of his research in the history of the maritime provinces. Dr. Webster was invited to deliver the principal address at the commencement exercises.

Society News.—Dr. Mabel M. Matthies has been elected president of the Chicago Women's Medical Club; Dr. Gertrude F. Thompson and Dr. Anny M. Saunders, vice presidents; Dr. Minnie Jahp, secretary; Dr. Goldye L. Hoffman, treasurer, and Dr. Sadie B. Adair, editor.——The quota for the summer clinics of the Chicago Medical Society at the Cook County Hospital has already been filled.——The old building at the southeast corner of Wabash and Lake is now being torn down to make way for the new medical and dental arts building, which will be ready for occupancy, May 1, 1927.

Personal.—Dr. Casey A. Wood has spent a year in Ceylon collecting material on comparative vision in birds and has now gone to Kashmir to continue this study for six months, when he will return to Chicago by way of China and the Philippine Islands; Dr. Wood has been made honorary collaborator in the Division of Birds, Smithsonian Institution, Washington, D. C., for his contributions to ornithology.——Dr. Irving F. Stein conducted a gynecologic diagnostic clinic before the alumni of the Detroit College of Medicine and Surgery, at Detroit, June 18.——Edwin O. Jordon, Ph.D., professor of bacteriology, University of Chicago, delivered a public lecture in the Harper Assembly Room, June 30, on "Conquest of Disease."——Dr. Franklin H. Martin received the honorary degree of doctor of public health at the recent graduating exercises of Detroit College of Medicine and Surgery, Detroit.

IOWA

Personal.—Dr. Clark C. Griffin, Vinton, who recently celebrated his eightieth birthday, has practiced medicine in that community for fifty-eight years.——Dr. William Jepson, Sioux City, has been appointed a member of the state board of medical examiners, effective, July 1.——Dr. and Mrs. John R. Coxe, North English, celebrated their golden wedding anniversary about the middle of June. Dr. Coxe has practiced medicine in North English for about thirty years.

Society News.—Dr. Merrill M. Myers was elected president at the annual luncheon of the Iowa Heart Association, Des Moines, May 14, and Dr. Fred M. Smith, Iowa City, vice president.——Dr. Joseph C. Bloodgood, Baltimore, addressed the annual meeting of the Dubuque County Medical Society, June 4, on "Cancer Diagnosis and Prevention," illustrated with lantern slides and specimens; Dr. Bloodgood gave a clinic in the morning on cancer and precancerous lesions, and in the evening a public lecture; Dr. Verne C. Graber, Iowa City, addressed the society on "Cardiac Decompensation" with especial reference to prevention.

LOUISIANA

Tax on Kerosene for Health Work.—The House of Representatives voted, June 16, to place a tax of 1 per cent a gallon on kerosene for domestic use to raise funds to assist in establishing tuberculosis sanatoriums in the parishes, and to indemnify dairymen for the slaughter of tuberculous cattle. The bill also provides that the state board of health provide full-time health officers and pay at least 20 per cent of their salary, and authorize the state board to assist any parish or group of parishes in establishing and maintaining tuberculosis sanatoriums for residents of the state.

State Society Kills Chiropractic Bills.—A large delegation of physicians from all parts of the state, representing the state medical society, the Orleans Parish Medical Society, the state board of medical examiners, Tulane University Medical School and other organizations, appeared before the senate committee on public health and quarantine June 1, and succeeded in defeating the chiropractic bill, the senate committee voting seven to one against the bill. Among those who addressed the committee were Dr. Stephen M. Blackshear, president, Louisiana State Medical Society; Dr. Leon J. Menville, chairman of the house of delegates; Dr. Benjamin A. Ledbetter, chairman, committee on public policy and legislation; Dr. Charles Cassedy Bass, dean, professor of experimental medicine and director of the laboratories of clinical medicine, Tulane University Medical School, and Dr. Paul A. Mellhenny, professor of clinical orthopedics and surgical diseases of children. Subsequently this bill was introduced in the house of representatives, and the chiropractors staged another rally before the house committee. The medical profession was solidly arrayed against the bill. The arguments before the committee lasted until after midnight; among those at this hearing in addition to physicians already mentioned were: Dr. Roy B. Harrison, secretary of the state board of medical examiners; Dr. Thomas E. Wright of the legislative committee; Dr. Joseph A. Danna; Dr. Edmund L. Leckert; Dr. William H. Seemann, state bacteriologist, and Drs. Marvin Cappel, Charles F. Gelbke, and Carl A. Weiss.

MISSOURI

Diploma Mill Ousted.—The supreme court of Missouri handed down a decision, June 23, in which the charter of the Kansas City College of Medicine and Surgery was ordered revoked and forfeited. The court held, it is reported, that the school misused its charter powers, franchises and privileges. Justice White said in the decision, "We can imagine no more serious injury to the public than the issuance of degrees to practice medicine to men wholly unqualified to treat the sick." The Kansas City College of Medicine and Surgery received its full share of unsavory publicity during the recent diploma mill scandal, which was well aired by the investigation in Connecticut. Dr. Date U. Alexander is secretary of the school.

Society News.—Dr. J. H. Eugene Rosamond, Memphis, addressed the Pemiscot County Medical Society, Caruthersville, on "Three Months Colic"; the society voted, unanimously, to raise its dues to $12.——The St. Louis Medical Society, St. Louis, recently adopted a resolution stating that it believes that the Reserve Officers' Training Corps in schools and colleges is of great value to the students and the government, and that it is particularly proud of the two corps in St. Louis.——The second annual banquet of the Ensworth-Central Medical College Alumni will be held, October 31, at the Hotel President, Kansas City, during the fall clinic week; Dr. Charles W. Fassett, 115 East Thirty-First Street, Kansas City, is the secretary.——Dr. Joseph W. Kimberlin has been elected president of the Kansas City Eye, Ear, Nose and Throat Society for the ensuing year, and Dr. Ambrose E. Eubank, secretary.

NEBRASKA

State Medical Election.—At the fifty-eighth annual meeting of the Nebraska State Medical Association, Omaha, May 11-13, Dr. Harry E. Potter, Fairbury, was elected president, and Drs. Roy D. Bryson, Calloway, Claude P. Fordyce, Falls City, and Isaiah Lukens, Tekamah, vice presidents. The next annual meeting will be at Lincoln.

NEW YORK

Personal.—Dr. Francis Park Lewis, Buffalo, has been elected first vice president of the National Committee for the Prevention of Blindness.——Dr. Arthur J. Bedell, Albany, has been elected president of the Alumni Association of Albany Medical College.

University News.—Graduates of Loyola University School of Medicine and Bennett Medical College are forming a New York State Alumnus Club; graduates of these schools are requested to send their name, address, and year of graduation to Dr. Louis J. Radest, 180 Thatford Avenue, Brooklyn.

New York City

Bequest to Urologic Clinic.—The will of Louis Sherry, filed, June 18, bequeathed about $700,000, of which $500,000 will be immediately available, to the J. Bentley Squier Urological Clinic at the Columbia-Presbyterian Medical Center. This will bring the sum available for the clinic, it is reported, to about $1,300,000. The clinic will occupy the eighth floor of the new Presbyterian Hospital building, and was originally intended to accommodate sixty-four patients. Mr. Sherry's will directs that his bequest should be used to provide beds, room and other accommodations for persons suffering from cancer, and in maintaining such patients according to the best judgment of the officers in charge of the hospital.

Graduation at Cornell.—Dr. Livingston Farrand, president of Cornell University, conferred the degree of doctor of medicine on sixty-three graduates, June 10; Dr. Frank S. Meara, professor of clinical medicine at Cornell University Medical College, gave the graduation address; the John Metcalf Memorial prize for excellence in scholarship was awarded to Miss Janet G. Travell, the daughter of Dr. John Willard Travell, New York; various other prizes were awarded for excellence in departments, including a prize, it is reported, from the surgeon general, U. S. Army, to the student attaining the highest military standing in the Reserve Officers' Training Corps; twenty members of the graduating class were commissioned as first lieutenants in the medical reserve corps.

Hospital News.—The New York *Times*, which conducts annual health examinations of members of its staff of three years' standing, will soon reequip its hospital department and clinical laboratory for employees in the Times Building.——A fund of $111,078, representing subscriptions and interest to establish a memorial in the new Presbyterian Hospital to Seymour L. Cromwell, a former president of the New York stock exchange, was turned over to the hospital, June 9; it will provide a ward of twelve beds, two of which will be set aside for the employees of the stock exchange and its affiliated companies.——The committee of the whole of the board of estimate has provided the expenditure of about $15,750,000 in the next two years to improve the city hospitals; of the more than $8,500,000 provided for expenditure this year, there is already available more than $6,000,000 which had been authorized previously. The institutions benefited include (1) Bellevue and Allied Hospitals; (2) those under the control of the department of health, and (3) those under the jurisdiction of the department of public welfare.——Dr. Arthur A. Landsman has been elected president of the medical board of the Jewish Memorial Hospital for the ensuing year, and Dr. Louis Neuwelt, secretary.——Dr. Adolph Rostenberg has been appointed attending dermatologist to the new Sydenham Hospital.——The new Bronx Hospital, Fulton Avenue and One Hundred and Sixty-Ninth Street, has broken ground for a 400 bed hospital.——Caledonian Hospital, Brooklyn, dedicated its new building, June 12.——Flushing Hospital, Flushing, is conducting a campaign for $1,000,000 to build an annex which will have eighty-one beds.——The French government officially recognized the service of the French Hospital, June 17, when decorations were conferred on a number of physicians connected with that institution.

NORTH CAROLINA

State Medical Election.—At the annual meeting of the Medical Society of the State of North Carolina, Wrightsville Beach, June 14-17, Dr. John Q. Myers, Charlotte, was elected president; Drs. John W. Carroll, Wallace, Aaron Y. Linville, Winston-Salem, and Charles H. Coke, Asheville, vice presidents, and Dr. Lewis B. McBrayer, Southern Pines, secretary-treasurer. The next annual meeting will be at Durham, April 18-21, 1927.

New State Health Officer.—At a special session of the state board of health, June 21, Dr. Charles O. Laughinghouse, Greenville, was elected secretary-treasurer of the board. Dr. George M. Cooper, who has been the acting secretary and treasurer of the board since the resignation of Dr. Watson S. Rankin about a year ago, will continue in that capacity until October 1, when the new appointment becomes effective. Dr. Rankin was elected a member of the state board of health to succeed Dr. Laughinghouse.

Traveling Postgraduate Lecturers.—The annual University of North Carolina postgraduate extension course for physicians began June 21 with a good attendance; the lecturers will be Drs. Howard Sprague, Boston; Dwight O'Hara, Boston University School of Medicine, and Edward S. Emery, Jr., associate in medicine, Peter Bent Brigham Hospital, Boston, each of whom will deliver four lectures at each place on the circuit: Mecklenburg, Guilford, Rowan, Gaston and other nearby counties.

Dean Kitchin Withdraws Resignation.—Dr. Thurman D. Kitchin, who recently tendered his resignation as dean of the Wake Forest Medical College, has withdrawn his resignation at the request of the board of trustees and will remain at the school as dean. The conditions which led to Dr. Kitchin's resignation have been removed, and he has been given full control of that department of the college. The board of trustees has accepted the resignation, it is reported, of Dr. Fountain W. Carroll and Walter F. Taylor, M.A., of the medical faculty.

New State Board of Examiners.—The state medical society at the recent annual meeting at Wrightsville Beach elected the following physicians to compose the state board of medical examiners for a term of six years:

Dr. Foy Roberson, Greensboro.
Dr. Paul H. Ringer, Asheville.
Dr. John K. Pepper, Winston-Salem.
Dr. William Houston Moore, Wilmington.
Dr. John W. MacConnell, Davidson.
Dr. Thomas W. M. Long, Roanoke Rapids.
Dr. Walter W. Dawson, Grifton.

In the history of the board, as far back as 1859, no member has ever been reelected or ever been a candidate for reelection. Dr. Walter W. Dawson, Grifton, has been elected president of the new board, and Dr. John W. MacConnell, Davidson, secretary-treasurer.

Our correspondent writes that strenuous efforts are being made to induce the state board to restore the licenses of physicians that were revoked following convictions in the federal court for violation of the Harrison Narcotic Act; it is not expected, he said, that these licenses will be restored, as the state medical society at its recent meeting went on record by a unanimous vote of the house of delegates as favoring the revocation of license on conviction in the court.

OHIO

License Revoked.—The state medical board, April 6, revoked the license to practice of Dr. Frank M. Baldwin, formerly of Marion and more recently at 628 East Mound Street, Columbus. Dr. Baldwin was found guilty, it is reported, of producing abortions several months ago, and was sent to the state penitentiary for a term of from one to seven years; he is said formerly to have become insane, and to have been sent to the state hospital in Columbus.

PENNSYLVANIA

Hospital News.—The American Legion posts in the North Pennsylvania communities have donated a new ambulance to the Grand View Hospital, Sellersville.——The Luzerne county commissioners have started a movement for the erection of a tuberculosis hospital on a site near Drums, on the state road between Wilkes-Barre and Hazelton.

Annual Clinic.—The Westmoreland County Medical Society held its fifth annual clinic, May 6, at Greensburg. There were about 400 physicians in attendance. Drs. Frank H. Lahey and Elliott P. Joslin, both of Boston, conducted the clinics, and following the annual banquet in the evening, Dr. Lahey addressed the meeting on "The Modern Conception of Biliary Diseases," and Dr. Joslin, on "Medical Education Inside and Outside of the Medical School."

Personal.—Dr. Lloyd E. Wurster, Williamsport, has been elected president of the Roentgen-Ray Society of Central Pennsylvania.——Dr. Robert F. Ridpath has been appointed professor of rhinolaryngology at Temple University School of Medicine, Philadelphia.——Dr. Richard R. Spahr, Mechanicsburg, has been elected a member of the school board.——

Dr. John D. Boger, Lebanon, has been appointed roentgenologist to the Good Samaritan Hospital of that city.——At the eleventh annual meeting of the Tenth Councilor District Medical Society, June 10, Dr. Michael M. Rankin, Ridgeway, was presented with a handsome stickpin by the society in celebrating his fiftieth year in the practice of medicine.

Society News.—Dr. William Blair Mosser, instructor in surgery, University of Pennsylvania School of Medicine, addressed the Northumberland County Medical Society at Mount Carmel, May 6, on "Goiter."——Dr. Henry K. Mohler, associate in medicine, Jefferson Medical College of Philadelphia, addressed the Bucks County Medical Society on "The Heart."——The Fifth Councilor District Medical Society, comprising eight counties, met at Huntington, June 16, and was addressed by the president of the state medical society, Dr. Ira G. Shoemaker, Reading, and Dr. Harry W. Albertson, president-elect; Dr. W. Wayne Babcock, Philadelphia, professor of surgery and clinical surgery, Temple University School of Medicine, discussed the interpretation of abdominal symptoms, and Dr. Harold A. Miller, professor of obstetrics, University of Pittsburgh School of Medicine, spoke on puerperal morbidity.

Philadelphia

University News.—Dr. David H. Bergey has been promoted to professor of hygiene and bacteriology at the University of Pennsylvania School of Medicine; Dr. Morton McCutcheon to be assistant professor of pathology, and Dr. Stanley O. Chambers to be assistant professor of dermatology and syphilology.

Personal.—Dr. John H. Frick has been elected president of the Alumni of Temple University Medical School.——Drs. James A. and William Irwin will return from an extended tour of Europe about September 1.——Dr. John Norman Henry has been elected trustee of the University of Pennsylvania; Dr. Henry is also president of the general alumni society of the university, having occupied that position for several years.

Hospital for Crippled Children.—The Shriners' Hospital for Crippled Children, which has a capacity of 100 beds and occupies a 16-acre tract on Roosevelt Boulevard, was opened, June 24; this is the largest hospital of its kind established by the Shriners; it is a $500,000 structure, and will be equipped at an expenditure of $150,000. The trustees are now organizing a staff of thirty physicians to treat crippled children not over 14 years of age, whose parents are unable to provide treatment, the only other requirement being that the children be of normal mentality, and that there be reasonable hope of improving their condition. There are Shriners' hospitals for crippled children now in Chicago, St. Louis, San Francisco, Montreal, Shreveport, Twin Cities and Portland, Ore.

SOUTH DAKOTA

Personal.—Dr. Durward R. Jones, formerly director of the Pennington health department, has accepted the appointment of epidemiologist for South Dakota.

Dr. Adams Honored.—The employees of the Yankton State Hospital tendered a reception, July 1, in honor of Dr. George S. Adams, superintendent of the hospital, who, on that date, completed his twenty-fifth year of service at this institution. Dr. Adams has been superintendent of the hospital since January, 1920.

Society News.—Dr. Joseph C. Waterman, Burke, has been elected president of the newly organized South Dakota Public Health Officers Association, and Dr. John F. D. Cook, Langford, secretary.——The Rush reunion during the annual meeting of the state medical association at Aberdeen, May 19-20, was attended by forty-four Rush graduates; the guest of honor was Dr. Rollin T. Woodyatt, Chicago.

TEXAS

University News.—The University of Texas School of Medicine conferred the degree of doctor of medicine on sixty-eight graduates, May 31; the degree was conferred posthumously on Frank S. Wootters, who was killed in a street car accident a few weeks ago.

Health at El Paso.—Telegraphic reports to the U. S. Department of Commerce from sixty-five cities with a total population of about 29,000,000 for the week ending June 5 indicates that the highest mortality rate (25.4) was for El Paso, and that the rate for the group of cities was 12.3. The mortality rate for El Paso for the corresponding week last year was 15.9, and for the group of cities, 14.2.

GENERAL

Dr. Long Resigns Position in Chile.—Dr. John D. Long, formerly assistant surgeon general, U. S. Public Health Service, has tendered his resignation to be effective at once, as technical adviser in public health to the ministry of hygiene of Chile. Dr. Long was lent by the U. S. government to reorganize the national health service in Chile, his services having been requested through diplomatic channels. According to the Chicago *Daily News*, his efforts to reorganize the health service of Chile were blocked by petty politics of the Figueroa cabinet and the opposition of the property owning class, who were forced to make their tenements livable and sanitary (The Journal, July 4, 1925, p. 45).

Gynecologists on Tour.—The American Gynecological Club, of which Dr. George G. Ward, professor of surgery and gynecology, Cornell University Medical College, New York, is president, and Dr. Floyd Keene, secretary, sailed from New York on the S. S. *Resolute*, June 29, for a tour of obstetric and gynecologic clinics in Germany, Denmark, Sweden, Norway, Scotland and England. Eighteen members, most of whom were accompanied by their families, were listed in the announcement as comprising the party. When they arrive at Liverpool, August 5, there will be a joint meeting with the Gynecological Visiting Society of Great Britain; the arrangements for the itinerary terminate in that city, August 7. Letters may be addressed care of Thomas Cook and Son, P. O. 845, W. D. O., London, England.

Renewal of Permits Under National Prohibition Act.—Although permits under the National Prohibition Act, entitling physicians to prescribe or use, or to prescribe and use, intoxicating liquor, do not expire until Dec. 31, 1926, renewal applications must be filed on or after July 1, but not later than August 31, with the prohibition administrator of the district in which the physician practices. An extension of time for filing an application may be granted by the prohibition administrator, for good cause shown. The granting of such extension, however, lies within the discretion of the administrator, and in no case may the time limit be extended beyond November 30. Physicians failing to make renewal applications within the allowed time limits must apply as for a new permit, if permit privileges are desired. Applications should be made in triplicate on form 1404, copies of which may be secured from the prohibition administrators.

New Bulletin.—The Association of American Medical Colleges begins this month the publication of a quarterly bulletin which will be distributed without charge to persons especially interested in medical education and medical pedagogy. The first number has articles by Dr. Hugh Cabot, dean and professor of surgery, University of Michigan Medical School; Samuel P. Capen, Ph.D., chancellor, University of Buffalo; Dr. Harold S. Burr, assistant professor of anatomy, Yale University School of Medicine; Dr. David J. Davis, dean, University of Illinois College of Medicine, and Dr. Edward Stanley Ryerson, secretary, University of Toronto Faculty of Medicine. A section is devoted to editorials and news, and the remainder of the bulletin to abstracts from current literature. All communications should be addressed to the editor, Dr. Fred C. Zapffe, 25 East Washington Street, Chicago.

Government Economizes on Physical Examinations.—The U. S. Department of the Interior effected an economy of about $167,000 during the current fiscal year by eliminating certain physical examinations of claimants for pensions and by having certain other examinations made by physicians in the government employ. There were about 22,000 fewer medical examinations of applicants for pensions conducted by the pension bureau in the last final year than in 1925. The saving was largely in connection with the claims of Civil War veterans for pensions, among whom about 20,000 physical examinations were eliminated because of the advanced age of the veterans, and the recognized disability of many of them. These increased pensions were awarded on reliable testimony as to the need of attendance for these veterans, and as to their condition of helplessness. In about 2,200 pension claims, the physical examinations were conducted by physicians already in the government employ. In previous years such examinations had been made by local boards of examiners, a fee being paid each member of the board; the average cost of the examination was then about $7.75. The pension bureau also announced that it had reduced the number of its employees by fifty-one.

Organizations for the Hard of Hearing.—The seventh annual meeting of the American Federation of Organizations for the Hard of Hearing was held at Philadelphia, June

22-25, under the presidency of Dr. Gordon Berry, Worcester, Mass.; Mayor Kendrick welcomed the delegates and others, and the director of education and social economy, Joseph R. Wilson, welcomed them in behalf of the sesquicentennial exposition, and Dr. George M. Coates for the medical profession of Philadelphia. Dr. Wendell C. Phillips, President of the American Medical Association, who is chairman of the federation's committee on research, presided at the scientific session, June 24, and also presented a report for the committee. The purpose of the federation is to act in the fields of social work for the deafened; to encourage the founding of local organizations for the deaf and properly to carry on national propaganda in the interest of the deafened and in the prevention of deafness. One session of the meeting was devoted to social practice, another to the deafened child, another to a lip reading tournament. There was a trip to Valley Forge, Thursday afternoon, and a banquet in the evening; Dr. Gordon Berry was the toastmaster.

Sheppard-Towner Bill Sidetracked.—An unsuccessful effort was made in the Senate, June 15, to bring up for passage the bill to extend for two years the provisions of the Sheppard-Towner Infancy and Maternity Law. Senator Phipps, chairman, Committee on Education and Labor, inserted in the record the report of that committee, recommending that the Sheppard-Towner Law be continued for one year—and no longer. The report states that a date for the discontinuance of the law should be definitely established now; that the work in the several states is strictly a local function; that the states should stand on their own feet rather than lean on the central government, thus tending to impair the prestige, power and sovereignty of local self-government. The Sheppard-Towner Law was sharply criticized by Senator Reed of Missouri and by Senator King of Utah. Senator King said: "It seeks to perpetuate an undemocratic and a paternalistic policy which was adopted in a moment of hysteria and as a result of an adroit and subtle propaganda. The bill before us seeks to thrust the federal government into the states for the purpose of discharging duties and responsibilities which rest either upon the states or upon the people themselves. It is in line with the hysterical suggestions so often made that the states must be controlled by bureaucracy and that the people are incompetent to govern themselves and must therefore submit to a deadly paternalism or to an omnipotent and tyrannous bureaucracy. Congress, when it passed the measure which it is now proposed shall be continued in force for a further period, enacted that it should exist for only five years. But bureaucrats and those who hold jobs under that law propose to do as bureaucrats always seek to do, namely, continue indefinitely temporary organizations and bureaus and policies in order that they may have federal positions and push the federal government into local and state concerns." Senator King's statements were controverted by Senator Sheppard of Texas, co-author of the bill, and Senator Simmons of North Carolina. The former asserted that the measure "has more than vindicated itself and that if the states are given full and proper opportunity they will in a few years become sufficiently familiar with the situation and sufficiently trained in this work to carry it on as suggested by the committee; but to limit it at this time to one more year is to fix entirely too short a period." The impression has prevailed that the proponents of the Sheppard-Towner Law expected to establish this work as a permanent part of the federal government's activities at a cost annually of $1,240,000. The debate concluded by a statement which Senator Bingham of Connecticut inserted in the record from the Census Bureau. This statement showed that in the five states which have rejected the Sheppard-Towner Law and the federal appropriations offered thereunder, namely, Connecticut, Illinois, Kansas, Maine and Massachusetts, the deaths under one year per thousand were only 69.9, whereas in the twenty-eight states in the birth registration area that have accepted this aid, the deaths were 74 per thousand. The Children's Bureau is cooperating with fifteen states not in the birth registration area, and concerning such cooperation it was said: "Accurate birth and infant mortality registration is the first essential in getting information of infant mortality, one of the things the Children's Bureau was created to do. Yet the Children's Bureau, with full power to require birth and mortality registration in the 'plans' of states accepting the maternity act, has 'cooperated with' fifteen states in not registering births and infant deaths." Final action on the bill to extend the Sheppard-Towner Law is thus deferred; and it is doubtful whether the bill can be passed within the brief period remaining of the present session of Congress.

CANADA

Personal.—Dr. John G. McDougall, Halifax, was elected president of the Provincial Medical Board at the annual meeting, recently, and Dr. William H. Hattie, secretary-treasurer.——Dr. Arthur C. Jost, Halifax, has been elected executive officer of the Nova Scotia Tuberculosis Commission.——Dr. James L. Biggar, Ottawa, has been appointed chief commissioner of the Red Cross in Canada.——Dr. Robert T. McGibbon, assistant professor of anatomy, University of Manitoba Faculty of Medicine, Winnipeg, has been appointed professor of anatomy at the University of Saskatchewan.

Court Holds Town Responsible for Typhoid.—For the first time in Ontario, the judge of the supreme court has rendered a verdict against a municipality for typhoid due to neglect in protecting the water supply. A woman living in Owen Sound contracted typhoid in the autumn of 1925. The evidence showed that the water supply of the town was polluted and that the city authorities not only failed to observe the warnings of the health department but assured the public that the water was safe. The plaintiff showed that she drank no other water, used pasteurized milk, did not eat ice cream, that no flies gained access to her residence, and that four other members of the household who drank boiled water escaped infection. The judge rendered a verdict of $2,000 and costs in favor of the plaintiff.

Dr. Collip Graduates in Medicine.—James B. Collip, Ph.D., D.Sc., professor of biochemistry, University of Alberta Faculty of Medicine, Edmonton, received the degree of M.D., C.M., at the recent convocation at that school, and was given a rousing reception when the degree was conferred, according to the *Canadian Medical Association Journal*. Dr. Collip took his first two years in medicine at the University of Toronto, 1910-1912. He spent a number of years there in the department of biochemistry, and in 1921 became associated with Dr. Frederick G. Banting and others in the extraction and standardization of insulin. Since Dr. Collip's appointment as professor of biochemistry at the University of Alberta, he has isolated a hormone from the parathyroid glands which keeps the blood calcium in thyroparathyroidectomized dogs within normal limits, and prevents parathyroid tetany.

FOREIGN

British Medical Association.—The British Medical Association now has a membership of 31,117, an increase in the past year of more than 2,000 members, and an increase since 1922 of about 6,000. The association, which has expended in the last fifty years more than £40,000 on scholarships and grants, and more than £30,000 on the national insurance campaign, had its origin in a meeting held by fifty physicians in 1832 with Sir Charles Hastings, the founder, in the chair. The ninety-fourth annual meeting of the association will be held at Nottingham, July 20, and the annual dinner in that city, July 22, at the Palais de danse; full evening dress will be worn with decorations, and the price of the dinner is 12s. 6d., exclusive of wine.

Personal.—The *Ugeskrift for Læger* states that Dr. H. Mygind, Copenhagen, has been elected an honorary member of the German Otolaryngologic Society.——A bronze bust of Prof. E. Morselli was recently unveiled at the clinic for nervous and mental diseases at the University of Genoa, with tributes from all the Italian asylums to this leader in psychiatry.——Dr. B. J. Kouwer, Utrecht, was given an ovation at his last lecture as he retired from the chair of gynecology on reaching the age limit.——Dr. E. F. Neve, who has been in charge of the medical mission in Kashmir since 1886, retires this year, and is to be succeeded by Dr. H. T. Holland.——The Tunis medical prize of 5,000 francs has been awarded to Dr. E. Burnet, assistant director of the Pasteur Institute at Tunis, for his research on Malta fever.——The Académie des sciences at Paris has given the Monaco prize to Dr. Jean Charcot for his scientific expeditions and to help him in a new one he is undertaking in the *Pourquoi-Pas*.——Dr. J. A. Doléris, professor of gynecology, University of Paris, has been visiting in Argentina, where he has large landed interests.——Dr. George E. Nesbitt has been appointed professor of medicine in the Royal College of Surgeons in Ireland; Dr. Andrew H. Davidson, professor of midwifery and pharmacology, and Dr. Leonard Abrahamson, professor of pharmacology.——Dr. Jui-heng Liu, medical superintendent, Peking Union Medical College, Peking, has been elected president of the National Medical Association of China to serve for the next two years.——

Major Gen. Robert S. Hannay has been appointed honorary surgeon to the king to succeed Major Gen. Henry A. Hinge, retired.——Sir Humphry D. Rolleston delivered the annual oration before the London Dermatological Society, June 16, on "The Relations of Dermatology and General Medicine."——Prof. J. Fibiger of Copenhagen was tendered recently a complimentary dinner by the staff of the Cancer Hospital at London.——Dr. M. Reiss, Friedenstr. 60, Dortmund, is secretary for the third International Congress on Individual Psychology which opens at Düsseldorf, Sept. 29.——Dr. Margarete Zulzer, Berlin, has gone to the Central Hospital at Sumatra, on request, for a year of research in protozoan and spirochetal diseases.——The *Presse médicale* relates that proceedings have been instituted at Paris against twenty Russian physicians, refugees, who have been practicing medicine without having a French diploma. The obtaining of a diploma has been facilitated for those among them who served with the Allies or rendered services to France during the war.

Deaths in Other Countries

Sir John Williams, emeritus professor of midwifery, University College, London, May 24, aged 85.——**Sir James Cantlie,** formerly joint editor of the *Journal of Tropical Medicine,* London, May 28, aged 75.—**Sir Henry Morris,** former president of the Royal College of Surgeons, London, England, and founder and vice president of the Imperial Cancer Research Fund.——Dr. **F. Rohrer,** professor of physiology at the University of Basel, whose index for physical measurements was of great service during the war period.——Dr. **A. T. Johannessen,** emeritus professor of pediatrics at the University of Oslo, aged 77.——Dr. **A. Gayoso,** professor of psychology at Pernambuco.——Dr. **Gerhardt Hotz,** professor of surgery at the University of Basle, aged 46.——Dr. **A. Frouin** of the Pasteur Institute, Paris.——Dr. **A. Rachmanoff,** professor of obstetrics at the University of Moscow, aged 66.——Dr. **J. Teissier,** emeritus professor of clinical medicine at the University of Lyons.——Dr. **R. Diriart,** director of the public hospital at Pau. He had just stepped to an open window after finishing an operation when he collapsed and fell to the pavement below.——Dr. **R. Turro,** emeritus professor of physiology at the University of Barcelona, author of numerous works on biology, aged 73.

CORRECTION

Religious Healing.—In a series of articles on Religious Healing, it was stated that the American Guild of Health confined its work to Protestant churches other than the Episcopal. Rev. Franklyn Cole Sherman, president of the American Guild of Health, writes that most of the work is done at present in the Episcopal church. All the officers and the majority of the trustees are Episcopalian.

Government Services

New Naval Officers

The following senior students of Class "A" medical schools were commissioned lieutenants (junior grade) in the medical corps of the navy, June 9, and assigned to naval hospitals at the cities indicated for their internship:

BOSTON: Emmett F. Guy, Milwaukee; Clyde M. Longstreth, Afton, Iowa; Herbert T. Rothwell, Denver; George D. Gertson, Lidgerwood, N. D.; Cornelius G. Dyke, Iowa City; Bruce E. Bradley, University, Va.; Stephen A. Parowski, Chicago; Theophilus F. Weinert, Naperville, Ill.

NEW YORK: Fred E. Angle, Kansas City, Kan.; Welbourne F. Bronaugh, Hugo, Okla.; William J. N. Davis, Jr., Chicago; Joseph B. Gordon, Richmond, Va.; Gifford H. Henry, Tulsa, Okla.; Albert Ickstadt, Jr., Finley Park, Ill.; Verner P. Johnson, Minneapolis; Robert Krohn, Black River Falls, Wis.; Gerald W. Smith, Pittsburg, Kan.; Charles R. Wilcox, Mount Vernon, Iowa.

PHILADELPHIA: Harry D. Cowlbeck, Glens Falls, N. Y.; Edgar E. Evans, Baltimore; Raymond W. Hege, Clemmons, N. C.; Paul E. Wedgewood, Cincinnati; Roy A. Boe, Soldier, Iowa; Thomas Jackson, Jr., Philadelphia; Arthur K. Joerling, Cincinnati; Harold V. Packard, Lanark, Ill.; Franklin V. Sunderland, Edgewater, Colo.

SAN DIEGO, CALIF.: Claude R. Bruner, Powersville, Mo.; Glenn S. Campbell, Portland, Ore.; William D. C. Day, Seymour, Ind.; Paul S. Ferguson, Chicago; Charles S. Fowler, San Jose, Calif.; Walter F. James, Champaign, Ill.; Herman M. Maveety, Cincinnati; French R. Moore, Portland, Ore.; Albert T. Walker, Oakland, Calif.

WASHINGTON, D. C.: Alexander E. Brunschwig, Evansville, Ind.; Charles J. Congdon, Hibbing, Minn.; Arthur W. Loy, Oberlin, Ohio; John C. Vermeren, Chicago; Henry M. Walker, Lebanon, Tenn.

Foreign Letters

LONDON

(From Our Regular Correspondent)

June 12, 1926.

Answer to the Attack on the General Medical Council

In previous letters I have described the attack on the general medical council in the form of a virulent press campaign, among other things for its removal from the medical register of Dr. Axham because of his acting as an anesthetist to Mr. Barker the bonesetter, who was unqualified, and also for the delay in considering his application for restoration to the register when he was in precarious health. Unfortunately, Dr. Axham died while the council was not in session before his case could be heard. At the opening of the present session, the president, Sir Donald Macalister, said that some misguided persons, for selfish ends unconnected with the applicant's interest, thought to sway the tribunal to hasty and partial action by means of popular clamor and denunciation directed against the council and its members. They abused the complaisance of the press, and misled the uninformed public regarding the facts. And by misrepresentation they sought to excite prejudice against the provisions of the law, expressly enacted to insure "that persons requiring medical aid should be enabled to distinguish qualified from unqualified practitioners." To these persons that distinction was no doubt professionally inconvenient, and to disparage the council, whose statutory function is to maintain it, might lead to the easier evasion of the law. The attempt to influence the council's judgment by threatenings against its constitution, if it did not yield to interested or ignorant demands, anticipated by a month or two the lawless attempt on a larger scale against the national constitution itself. From no single member of the council did the president receive a hint that it should do other than bear the attack with equanimity, and maintain meanwhile the impartiality of its position as a judicial body. The president was deeply grateful for the unanimous support of the members of the council in his refusal, as president, to summon it on his own responsibility. That would have been to take action which must tend to bias its opinion, in one direction or another, on a matter submitted for their independent judgment. Two different views were tenable on the merits of Mr. Axham's case, and were held by important professional bodies. There was reason to think that the factitious agitation against the council as an independent tribunal, instigated by unqualified persons under cover of Mr. Axham's name, but joined in by many who, ignorant of the facts, were moved by laudable compassion for his age and infirmities, has led indirectly to a better understanding of the council's duties in relation to the protection of the public and to the training and discipline of the medical profession.

In an editorial the *Times* characterizes as startling the comparison by the president of the Axham case to the general strike, and refers to the manner in which the address was received by the council as indicating a feeling that "it had emerged with great credit to itself and some benefit to the nation from a period of difficulty and danger." But the *Times* points out that the council has not emerged without a very important change in its membership; for the first time in its long history a layman has been appointed by the government to sit as a member. The *Times* thinks that such an appointment "suggests criticism of professional pedantry rather than gratitude for an inspiring example." It should be pointed out that in the clamor against the council the demand was made for the infusion of lay members on the ground that, being a purely medical body, it took a narrow

view and was often actuated by a desire to protect the interests of the medical profession rather than those of the public. This was quite unfounded, though the government appears to have yielded to the clamor.

Effect of Cobra Venom on Plants

The Indian scientist Sir Jagadish C. Bose, F.R.S., addressed the Royal Society of Medicine on the action of cobra venom on the pulse beats of plants. He said that Strasburger held that the movement of sap was not affected by the action of poison. The lecturer's own experiments on the action of stimulants which revived a dying plant and of poisons which abolished the ascent of sap and killed a vigorous plant proved, however, that sap propulsion was brought about by a rhythmic propulsive tissue, which functioned both as the pumping heart and artery for the transport of the sap. By means of his electric probe, the propulsive tissue had been localized, and what might be called the electrocardiogram of the plant had been obtained. A mechanical record of the invisible pulse beat of the plant had been obtained by a new type of optical sphygmograph. It produced the stupendous magnification of from five to ten million times by means of a reflected beam of light. Drugs and alkaloids produced modifications of the pulse beat of the animal and the plant which were extraordinarily similar. Camphor, caffeine and musk were stimulants for both, while potassium bromide, cocaine and morphine were depressants. Minute doses of strychnine caused stimulation of the plant, while larger doses produced depression and toxic effect. Moderate doses of cobra venom, alike in the plant and in the animal, produced similar arrest of the pulse, followed by death. A preparation of venom known as shuchikavaran, the principal component of which was a minute quantity of cobra poison, had been employed in the Hindu system of medicine for nearly a thousand years. It was still used in desperate emergencies when a patient was on the point of death from heart failure. The preparation was held to be effective in reviving the activity of the failing heart. He found that minute doses of cobra venom caused a great stimulation of the pulsating activity of the plant. Injection of shuchikavaran in the blood stream of the animal in a state of depression was also found to produce a marked improvement in the frequency or amplitude of pulsation of heart beat. The simpler type of plant organization offered a unique advantage in investigation, the pursuit of which was sure to lead to the solution of many perplexing problems in the more complex animal life.

Sir William Leishman

Sir William Leishman, M.B., F.R.C.P., F.R.S., director-general of the army medical service, a great pioneer in the study of tropical diseases, has died at the age of 60 years. Born in 1865, the son of Dr. William Leishman, professor of midwifery in the University of Glasgow, he was educated at the University of Glasgow, where he graduated M.B., C.M., in 1886. He entered the army medical service as surgeon, and was gazetted captain in 1887, major in 1899, and brevet lieutenant-colonel in 1905, having served in the Waziristan expedition, in which he devoted himself to the subject of bacteriology, especially with regard to tropical medicine, and with such success that he was appointed assistant professor of pathology at the army medical school at Netley in 1900. After three years he was promoted to the post of professor of pathology in the royal army medical college at Millbank, London. He was elected a fellow of the Royal Society in 1910, and in the following year he served as president of the Society of Tropical Medicine and Hygiene, and in 1912 he was appointed honorary physician to the king. From 1913 to 1915, Leishman was a member of the yellow fever commission, West Africa; and he acted for a time on the medical and sanitary advisory committee for tropical Africa, and for ten years he was a member of the medical research council. His appointment to the highest post in the army medical service did not wean him from his scientific pursuits. He became chairman of the foot-and-mouth disease research committee appointed by the minister of agriculture. Only a few weeks ago he was elected president of the Section of Comparative Medicine at the Royal Society of Medicine. Second to Sir Almroth Wright, credit is due to him for antityphoid inoculation. The early attempts to produce a vaccination against typhoid fever had not been very successful, and experiences in the South African war with antityphoid vaccines led to their condemnation. Critics declared that the "cure was much worse than the disease." But Wright and Leishman went on with the work in which they believed. And the result was that, when the Great War came, typhoid fever, that old menace of armies, was practically eliminated. Leishman's greatest contribution to medicine was his work on the group of diseases which now bear his name—leishmaniasis. Before he began his work, the relation between the Indian kala-azar (black sickness), the so-called Oriental sore, and the Mediterranean type of kala-azar was not established. Leishman in 1900 discovered a body in the blood of a soldier affected with Indian kala-azar which is now known as the Leishman-Donovan body. This parasite is the cause of Indian kala-azar, and a similar parasite causes the Mediterranean form of the disease and also oriental boil. His army career contradicted the usual view that eminent scientific men are not good administrators. His services in the Great War won him mention in dispatches on three different occasions, and he was decorated C.B. in 1915, K.C.M.G. in 1918, commander of the Legion of Honor, and received the distinguished Service Medal of the U. S. Army.

Trypanosomiasis in Tanganyika

Reports on the recent outbreak of trypanosomiasis in the Ufipa district of Tanganyika have now been received by the colonial office. An area of more than 10,000 square miles is involved; fortunately, it is very sparsely peopled, the population averaging about one per square mile. Three thousand natives were removed to fly-free areas; approximately 300 cases of the sickness were found, and ninety deaths were ascribed to it. Treatment by "Bayer 205" and tryparsamide proved effective. The Tanganyika government is now extending its work on trypanosomiasis. Six physicians have been employed on it exclusively during the past year, and a distinct branch of the medical department to deal with the disease is being organized. Although the infection is widely spread, it has not attained the proportions of an epidemic. The total number of deaths among natives recorded in 1925 was only 161. No European died.

A British College of Nurses

An anonymous donation of more than $500,000 has been made to found a British College of Nurses, to be composed at first of foundation members, all of whom will be registered women nurses, and of foundation fellows occupying responsible official positions in the nursing world. After an initial period of grace, membership will be limited to registered nurses who pass an examination and pay an entrance fee. Such a diploma, it is suggested, will become essential for those who wish to gain higher posts in the nursing profession, and the higher professional status offered is designed to attract candidates of a desirable type to adopt nursing as their profession. The council of the college will appoint lecturers, teachers, inspectors and examiners; will offer legal advice to its members and fellows, and will provide for their assistance in sickness, accident or old age.

NETHERLANDS

(From Our Regular Correspondent)

May 19, 1926.

Proposed Consolidation of Government Medical Services

Heyermans proposes a single medical organization that will include all government services in connection with medicosocial work: insurance, public health service and the army and navy. Heyermans recommends the appointment of a general medical director, who would serve under the minister of health. The country would be divided into districts, each having its own administrative head. The medical department of each district would be accountable for all medical and public health services needed in connection with the various ministerial departments, the department of insurance, and the inspection of labor. The operating expenses of the medical department would be borne by the various organizations that made use of this medical service: the communes, department of labor, the government institute of insurance, the postoffice department, the administration of railways, the pension department, the army and the navy.

Milk Control

An experiment carried out by a dairy farm, which in 1910 decided to place its product under the control of the Pathologic Laboratory at Leiden, shows that the quality of milk from the bacteriologic point of view (50,000 bacteria per cubic centimeter is the maximum permitted) is determined almost entirely by the conditions under which the milking is done. The warm summer months have very little to do with its keeping qualities.

Statistics of Infectious Diseases

The report of the public health service for the year 1924 contains the following: There were 1,187 cases of typhoid fever with a mortality of 161. The general morbidity was 164 per 10,000 population. Scarlet fever caused fifty-four deaths out of 6,635 cases. There were 4,134 cases of diphtheria with 237 deaths. Eighty cases of epidemic encephalitis, with fifty-three deaths, were reported; it is probable, however, that there were many more cases which were not diagnosed.

Congress on Vocational Guidance

A national congress on vocational guidance was recently held under the honorary chairmanship of the burgomaster of Amsterdam, M. De Vlugt. Two subjects were presented and awakened a lively discussion. Gerhard dealt mainly with the ethical and economic factors of vocational guidance. Dr. Van Wayenburg, director of the psychotechnical laboratory, discussed vocational guidance from the medical angle.

Pertussis Vaccine

The trials with pertussis vaccine from the state serologic institute are being continued in the hospitals. Brouwer has published the results secured in an Amsterdam institution in treating thirty-eight children from 2 months to 3 years old. The children were vaccinated as soon as the diagnosis was established. Those presenting clinical symptoms of pertussis received a subcutaneous injection every two days, the others every three days. The dosage varied with the ages of the subjects. When used prophylactically, four injections were given; when used therapeutically, the number was increased. No untoward reactions were noted. The results appear to have been favorable from the curative point of view. The epidemic was, on the whole, mild. Paroxysms were neither frequent nor violent, although vaccination did not eliminate them. There were no complications. It does not seem likely that the mildness of the epidemic can be attributed to the fact that the source of infection was itself a mild case. The youngest children were sick much longer and presented more violent symptoms. It should be noted that, in these young children, the interval between the preventive and the curative injections was from five to three months. The prophylactic value of vaccination remains doubtful, since, although the thirty-eight children in the institution were vaccinated, they contracted whooping cough.

Sodoku, or Rat-Bite Fever

In a thesis presented to the faculty of medicine of Amsterdam, Melle Ruys treats sodoku, or rat-bite fever, from the clinical and experimental point of view. She succeeded in finding the causal spirochete in three out of 250 rats. She found also a similar but less virulent spirillum in mice.

Comparison of Urban and Rural Tuberculosis

In cooperation with the League of Nations' research to determine the rural and urban incidence of tuberculosis, the public health service report for 1925 contains a study based on the application of the Pirquet test. The figures for the cities of Rotterdam and Amsterdam are compared with those of three rural provinces: Gelderland, Drenthe and Zeeland. In the cities there was 49 per cent of positive reactions; in the rural sections, 52 per cent, slightly in favor of the urban centers.

International Congress on the History of Medicine

The sixth International Congress on the History of Medicine will be held at Leyden and Amsterdam, July 18 to July 23, 1927; chairman, Dr. De Lint. One feature of the congress will be a section on paintings, books and medals.

PRAGUE

(From Our Regular Correspondent)

May 15, 1926.

Birthday of Professor Haškovec

The present dean of the Czech Medical Faculty of Prague, Prof. Ladislav Haškovec, celebrated his sixtieth birthday, May 18. His scientific publications number 114 papers, not including numerous reviews and reports. In 1904 he founded a monthly periodical, the *Review of Neurology and Psychiatry*, of which he is still editor. Not only have his papers been published in the Czech medical journals, but they are to be found in French periodicals. His chief contributions to medical science are research on the functions of the thyroid gland, investigation into the effect of alcohol on the heart and the blood circulation, and studies on the structure of the nervous tissue in paralysis agitans. The neurologic syndrome akathisia bears his name in the international scientific nomenclature.

New Chief of Clinic

The successor of Professor Jaksch-Wartenhorst, chief of the clinic for internal diseases at the German Medical Faculty in Prague, is Prof. Theodor Brugsch of Berlin. Professor Brugsch is 45 years old and is a pupil of Friedrich Kraus of Berlin. With Schittenhelm, he worked up the problem of gout. In a series of papers he dealt with the problem of constitution, and in recent years he has occupied himself with the study of metabolism.

Water Supply in Bohemia

Bohemia, along the mountainous boundaries, has a great number of public water supplies, but in the flat center of the province water supplies require large investments because the pipes must be laid for long distances to bring the water from its sources. In order to make the building of water supplies easier for those parts of the province which are very rich agricultural regions, a type of water supply for a group of communities has been worked out. Thirty-seven such group

water supplies have been completed, with a total length of pipes of 130 miles. Thirty-three other projects are under construction. The greatest number of communities that one of these projected water supplies is to serve is seventy. Since 1918, the building of 288 individual water supplies for single communities has been started, with a total length of pipes of 460 miles. Of this number, eighty-five systems have been completed, with a total length of pipes of 232 miles.

Congress of Society for Roentgenology and Radiology

The first congress of the Czechoslovakian Society for Roentgenology and Radiology was held in Prague, May 22-24, under the presidency of Prof. R. Jedlicka of Prague. Radium was first isolated from the uranium ore of Jachymov, Bohemia. The congress held its sessions in four sections. The first section dealt with roentgenologic diagnosis; the second, with the physics and technic of radiology; the third, with biologic problems of radiology and roentgenology, and the fourth, with treatment of pathologic conditions by the means of roentgen rays and radium. The paper by the chief of the department of physics at the Institute for Radiology, Dr. F. Behounek, was read by title, because, at the time of the congress, he was participating in Amundsen's expedition to the North Pole.

League Against Tuberculosis

The Masaryk League against Tuberculosis held its annual meeting in Prague, May 15. The annual report shows the growth of this organization. The league suffered a heavy loss through the recent death of its president, Dr. F. Malinsky. Up to last year the tuberculosis work in Slovakia was done by the Red Cross because of the lack of workers. During last year the league organized a branch office for Slovakia and sixty new local chapters. By this measure the league has finally covered the whole territory of the Czechoslovak Republic. The tuberculosis mortality continued to decline during last year. The league comprises 278 local branches. There are 37,935 paying members. The league during the past year has been developing its educational activities through lectures, exhibits and printed material. The first antituberculosis film of Czechoslovak origin was put into circulation. The bulletin of the league completed its sixth volume with a circulation of 4,500 copies. The regional conferences of tuberculosis workers, organized by the regional committees, have become important. Because the conferences are accompanied by papers on scientific topics, they are well attended by the members of the medical profession and serve to spread antituberculosis propaganda. The chief task of the league is the erection of tuberculosis dispensaries. There exist at the present time 174 such stations in the whole country. The league has been pushing the organization of family colonies for children from tuberculous families along the lines of the French Oeuvre Grancher. The paying of fees of the tuberculous in sanatoriums forms one of the largest items in the expenditures of the league.

Infectious Diseases

The State Statistical Institute recently published figures concerning infectious diseases during 1920-1924. The year 1921 can be considered a truly epidemic year. Typhoid in September and October rose as high as sixty cases per hundred thousand, and in winter sank to thirty. In 1921 the highest rate was 102 for the month of September. The incidence for the year 1924 was 48.8. Through the year 1920 scarlet fever incidence was very low. The year 1921 witnessed a big epidemic of scarlet fever with the peak in October, 1921, when the rate was 210 per hundred thousand population. The following years showed regular epidemics in the fall, with the maximum incidence in October, the rate being around 100 per month. This is to be explained by the change in the age distribution of the population which came about by the enormous fall in the birth rate during the war and consequently by an almost complete disappearance of the population susceptible to scarlet fever infection. The rise of the birth rate was again followed by a rise in the incidence of scarlet fever. The scarlet fever incidence for the year 1924 was 68.7. Diphtheria continues to be as rare as it was during the war. Its incidence varies around twenty-five cases per hundred thousand population. The years 1920 and 1921 have brought large epidemics of dysentery, in the summer months attaining a rate more than 210 per hundred thousand. Typhus fever has become a negligible factor among the contagious diseases; the rate for the year 1924 was 0.3 per hundred thousand. The same holds for smallpox, the rate of which declined to 0.1 per hundred thousand in 1924 owing to the strict enforcement of compulsory vaccination throughout the country.

BERLIN

(From Our Regular Correspondent)

May 22, 1926.

Nervous Disturbances and Smallpox Vaccination

In recent months articles have been appearing in the medical literature of many countries on the apparent development of affections of the central nervous system associated with smallpox vaccination. For example, there have been observations on poliomyelitis and encephalitis, in the Netherlands, Czechoslovakia, Switzerland, and other countries. Doubts will naturally arise in regard to the causal connection between smallpox vaccination and the aforementioned affections. Winkler, in a recent article, reaches the conclusion that the affinity of the smallpox virus for the nervous system is slight, and states that all his attempts to bring about artificial infections were unsuccessful. He does not consider that the rare cases of encephalitis that have followed smallpox vaccinations were due to vaccine virus, but he does not deny that the virus might weaken the resistance of the body to the causative agent already present. In an earlier article, Professor Salomon of Vienna, who has been sojourning in Buenos Aires for some time, expressed the opinion that vaccination might possibly have a bearing on general paralysis. The allergy of the organism, and especially of the skin, which occurs in vaccination, may play a rôle in the dissemination of the spirochetes of syphilis, since it makes more difficult the localization of the spirochetes in the skin, and thus prevents the development of a syphilitic allergy and facilitates greatly the development of metasyphilitic manifestations. He brings out that since the introduction of vaccination there has been considerable increase of paralysis affections. Daraskiewicz, in another article, reaches similar conclusions. In regions in which there is no organized vaccination of the population, general paralysis is rare. In patients with general paralysis he has never seen smallpox scars, but vaccination scars were always present. Kolb, the director of a psychopathic institution in Erlangen, on the basis of statistical researches on the frequency of softening of the brain in many countries, does not regard a connection between general paralysis and smallpox vaccination proved, though he does consider it possible. Professors Plaut and Jahnel have reached the conclusion that the theory is entirely untenable, for, if smallpox vaccination were necessary to the development of general paralysis, then softening of the brain would never occur in unvaccinated persons. In Mexico the investigators found pure-blooded Indian paralysis sufferers who were pitted from smallpox. Of seven undoubted cases of general paralysis, two presented smallpox scars; of three probable cases, one revealed scars. They found two further paralysis patients without vaccination scars among the negroes of the St. Elizabeth Hospital in Washington. Since 1902,

when smallpox vaccination began to be strictly enforced in Cuba, no increase in softening of the brain has been observed. In contrast with Cuba, Kräpelin and Plaut found general paralysis frequent in Mexico, in various race groups, although smallpox vaccination is not strictly enforced and the incidence of smallpox is accordingly high. Under these conditions, it would be equally plausible to ascribe the dissemination of paralysis to the spread of smallpox.

Since general paralysis existed before smallpox vaccination was in vogue, there is no justification for the statement that general paralysis appeared simultaneously with smallpox vaccination. Also the experiences of immunology are opposed to the idea of a connection between general paralysis and smallpox vaccination. That smallpox, as well as other infectious diseases (for example, malaria), may exert a curative effect on syphilis is now fully accepted. But such an influence could not be exerted unless the smallpox infection happened to follow the infection with syphilis. Smallpox, however, when there is no vaccination, usually occurs in childhood, so that the age-groups that are exposed to syphilitic infection are generally immune to smallpox. Since smallpox, when an epidemic occurs among an unvaccinated and smallpox-free population, has an average mortality of 25 per cent, it would carry off one fourth of all syphilis patients, whereas the mortality of syphilis patients with softening of the brain is only from 5 to 10 per cent. In the year 1871-1872, before the introduction of compulsory vaccination, 8,286 persons died in Bavaria of smallpox, whereas in 1922 only 272 persons died from general paralysis in the psychopathic institutions of Bavaria.

Some Results of the Census in Bremen

The Bremen statistical office is the first to publish results of the general census taken June 16, 1925. Since the report is based on an almost exclusively urban population, the statistics cannot be regarded as typical of Germany as a whole. The adjacent table shows the representation of the various age-groups, in 1900 and in 1925.

	Men		Women	
Age-Group	1900	1925	1900	1925
1–14	32,379	35,661	32,287	34,123
15–25	25,120	36,142	26,115	36,951
26–40	27,391	38,726	26,074	45,946
41–60	18,392	41,579	20,452	41,239
Above 60	5,748	11,669	8,113	15,610
Total	109,030	163,777	113,041	173,869

It will be noted that, in spite of the marked increase in the population, there has been no particular increase in the number of children. However, the increase in the older age-groups amounts to more than 100 per cent.

The percentage of unmarried persons has dropped from 62.1 and 57.4 in 1900 to 51.8 and 48.1, respectively, in 1925. More than half of the female population was married, or had been married. Since 1910, the male population of Bremen had increased 11.6 per cent and the female population 16.0 per cent.

Marriages

HAMLINE A. MATTSON, Minneapolis, to Miss Esther Westman of Cannon Falls, Minn., June 18.

FELIX CHRISTIAN RYKKEN, Bellingham, Wash., to Miss Agnes Jean Lee of Everett, May 22.

LOUIS P. HINIKER, St. Paul, to Miss Elizabeth Berchmanns Sullivan of Minneapolis, June 10.

AUGUST J. STREIT, Marlin, Texas, to Miss Carrie Knox Williams of Fort Worth, June 10.

Deaths

Henry Milton Whelpley ⊕ St. Louis; Missouri Medical College, 1890; professor of physiology, histology and microscopy and director of the biological laboratory at his alma mater, 1890-1900; professor of materia medica and pharmacy, Washington University Medical School, 1901-1911; professor of practical pharmacognosy, St. Louis College of Pharmacy, 1884-1922, and dean, 1904-1925; member of the American Pharmaceutical Association (president 1901, treasurer 1908-1921), the U. S. Pharmacopeial Convention (secretary, board of trustees) and vice president of the American Microscopical Society; aged 64; died, June 26, at Argentine, Kan.

Henry Skinner, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1884; formerly state entomologist of Pennsylvania; president of the American Entomologist Society, 1909; editor of *Entomological News,* 1890-1911; member of the committee on nomenclature; International Zoological Congress; aged 65; died, May 29, of chronic nephritis.

Aaron Robert Wheeler ⊕ St. Louis, Mich.; University of Michigan Homeopathic Medical School, Ann Arbor, 1879; formerly mayor, postmaster and member of the board of health; for twenty years president of the board of education; aged 67; died, May 1, of pneumonia.

Louis Schwab ⊕ Cincinnati; Medical College of Ohio, Cincinnati, 1883; member of the Cincinnati Obstetrical Society; formerly county coroner, health officer and mayor of Cincinnati; since 1904 member of the board of education; aged 75; died, June 4, of myocarditis.

Richard H. Smith, Havre de Grace, Md.; University of Maryland School of Medicine, Baltimore, 1875; member of the Medical and Chirurgical Faculty of Maryland; on the staff of the Havre de Grace Hospital; aged 76; died, May 13, of paralysis agitans.

Michael O'Hara, Philadelphia; University of Pennsylvania School of Medicine, Philadelphia, 1890; Spanish-American War veteran; formerly on the staffs of St. Agnes Hospital and the House of Good Shepherd; aged 56; died, June 9, of heart disease.

James Shannon, Seattle; University of California Medical School, San Francisco, 1887; member of the Washington State Medical Association; on the staffs of the Columbus and Providence hospitals; aged 67; died, May 28, of coronary thrombosis.

Joseph Henry Saunders, Wellesley Hills, Mass.; Medical School of Harvard University, Boston, 1900; formerly assistant in clinical medicine, Tufts College Medical School; aged 53; died, May 14, at Boston, of mitral regurgitation.

Carl Estep Bosley, Silver City, N. M.; State University of Iowa College of Medicine, Iowa City, 1913; member of the New Mexico Medical Society; served during the World War; aged 42; died, May 2, of pulmonary tuberculosis.

Thomas H. Brayshaw ⊕ Glenburnie, Md.; College of Physicians and Surgeons, Baltimore, 1885; formerly professor of climatology and hygiene, Maryland Medical College, Baltimore; aged 66; died suddenly, in May, of heart disease.

Charles T. Gallagher ⊕ Mount Sterling, Ohio; Cincinnati College of Medicine and Surgery, 1892; formerly state senator; mayor of Mount Sterling; aged 56; died, June 6, at the Grant Hospital, Columbus, of encephalitis.

Howard Burton Bartholomew, Cobleskill, N. Y.; Yale University School of Medicine, New Haven, 1914; member of the Medical Society of the State of New York; aged 40; died, March 20, of pneumonia and diabetes.

William Joseph Smith ⊕ Ozone Park, N. Y.; Georgetown University School of Medicine, Washington, D. C., 1924; on the staff of the Mary Immaculate Hospital; aged 29; died, May 30, of pulmonary tuberculosis.

James A. Swafford, Sherman, Texas (licensed, Texas, under the Act of 1907); for six years county health officer and for four years city health officer; aged 70; died, May 9, of myocarditis, following influenza.

Henry Tull, Kinston, N. C.; University of Pennsylvania School of Medicine, Philadelphia, 1876; member of the Medical Society of the State of North Carolina; aged 72; died in May, of mitral regurgitation.

⊕ Indicates "Fellow" of the American Medical Association.

Joseph Addison Overstreet, Kingfisher, Okla.; Bellevue Hospital Medical College, New York, 1883; member of the Oklahoma State Medical Association; aged 67; died, May 27, of carcinoma of the stomach.

John E. Coles, Alberene, Va.; University of Virginia Department of Medicine, Charlottesville, 1882; member of the Virginia Medical Society; aged 65; died, May 11, at Los Angeles, of angina pectoris.

Edward Francis Crofutt, Brooklyn; Yale University School of Medicine, New Haven, 1904; for three years on the staff of the Brooklyn State Hospital; aged 45; died, June 1, at the Kings County Hospital.

Benjamin L. Long, Hamilton, N. C.; University of Maryland School of Medicine, Baltimore, 1881; member of the Medical Society of the State of North Carolina; aged 74; died, April 29.

Charles C. Housmyer, Dillsboro, Ind.; Eclectic Medical Institute, Cincinnati, 1904; member of the Indiana State Medical Association; aged 46; died, May 22, of cerebral hemorrhage.

Leigh K. Baker, Cleveland; Cleveland College of Physicians and Surgeons, 1887; Western Reserve University School of Medicine, Cleveland, 1890; aged 63; died, in May, of cerebral hemorrhage.

William B. James ✠ Port Huron, Mich.; Detroit College of Medicine and Surgery, 1899; recently appointed city health officer; aged 55; died, May 14, of acute hemorrhagic pancreatitis.

John M. Thompson, Old Washington, Ohio; Ohio Medical University, Columbus, 1905; aged 51; died, April 21, at the Mount Carmel Hospital, Columbus, of embolism, following phlebitis.

George W. Crosthwait, Florence, Tenn.; University of Louisville School of Medicine, 1870; member of the Tennessee State Medical Association; aged 79; died, May 31, of myocarditis.

Alexander L. Robinson ✠ New York; George Washington University Medical School, Washington, D. C., 1889; aged 63; died, June 4, at the Presbyterian Hospital, of pernicious anemia.

John A. Reily, Patton, Calif.; Homeopathic Medical College of Missouri, St. Louis, 1898; member of the California Medical Association; aged 51; died, May 14, of bronchopneumonia.

William Miller Orr, Chattanooga, Tenn.; Vanderbilt University Medical Department, Nashville, 1882; member of the Tennessee State Medical Association; aged 70; died, March 8.

Eli B. Brown, Billings, Mo.; College of Physicians and Surgeons, Keokuk, 1876; member of the Missouri State Medical Association; aged 80; died, May 12, of arteriosclerosis.

Charles Watkins Robb, Goodlettsville, Tenn.; Vanderbilt University Medical Department, Nashville, 1879; aged 68; died, May 26, at a sanatorium in Madison, of angina pectoris.

Edward Howard Babcock, Brooklyn; Long Island College Hospital, Brooklyn, 1891; also a dentist; aged 62; died, May 27, at the Long Island College Hospital, of pneumonia.

Isaac Hawkins Moore, Wilkes-Barre, Pa.; Jefferson Medical College of Philadelphia, 1866; aged 83; died, May 28, of intestinal obstruction and hemorrhage of the stomach.

Howell Sylvester Bontecou ✠ Beacon, N. Y.; University of Pennsylvania School of Medicine, Philadelphia, 1902; veteran of the World War; aged 49; died, May 19, of diabetes.

Martin P. Boyd, Yuma, Tenn.; University of Tennessee College of Medicine, Memphis, 1878; member of the Tennessee State Medical Association; aged 87; died, March 25.

George W. Gracy, Uhrichsville, Ohio; Ohio Medical University, Columbus, 1894; member of the Ohio State Medical Association; aged 68; died, May 22, of heart disease.

Elizabeth S. Lynch, San Francisco; Hahnemann Medical College of the Pacific, San Francisco, 1889; aged 77; died, May 30, of cerebral hemorrhage and heart disease.

Alvey S. Hoover, Stamps, Ark.; Memphis Hospital Medical College, 1889; member of the Arkansas Medical Society; aged 67; died, May 31, of cerebral hemorrhage.

Alfred Cheatham Stokes, Trenton, N. J.; University of Pennsylvania School of Medicine, Philadelphia, 1869; aged 79; died, April 15, of acute dilatation of the heart.

Alvin A. Wertman ✠ Tannersville, Pa.; Jefferson Medical College of Philadelphia, 1889; aged 62; died, May 8, at the Jefferson Hospital, Philadelphia, of pneumonia.

Clifford Charles Parrish, Fort Sumner, N. M.; Atlantic Medical College, Baltimore, 1908; World War veteran; aged 46; died, recently, of tuberculosis.

John Clayton Sherman, Haynesville, La.; Vanderbilt University Medical Department, Nashville, Tenn., 1901; aged 49; died, May 21, of tumor of the brain.

Benjamin F. Hatfield, Union, Ind.; Medical College of Ohio, Cincinnati, 1882; aged 70; died, May 30, of carcinoma of the face and interstitial nephritis.

Henry Cook Windel ✠ Williston, N. D.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1902; aged 55; died in April, of acute appendicitis.

Samuel R. Rodgers, Mount Airy, Ga.; Vanderbilt University Medical Department, Nashville, 1876; aged 74; died, April 26, following a long illness.

Harrison Edward Stroud, Los Angeles; University of Colorado School of Medicine, Denver, 1885; aged 69; died, May 10, of cerebral hemorrhage.

Frank Clifford Carle ✠ Garrison, Iowa; State University of Iowa College of Medicine, Iowa City, 1904; aged 53; died, May 16, of cerebral hemorrhage.

William Caulk, Easton, Md.; University of Maryland School of Medicine, Baltimore, 1867; aged 81; died, May 18, at St. Michaels, of senility.

Joseph Michael Stroup, Mount Orab, Ohio; Cincinnati College of Medicine and Surgery, 1889; aged 61; died, April 3, following a long illness.

William Wade Morris, Preston, Va.; Jefferson Medical College of Philadelphia, 1860; Civil War veteran; aged 90; died, May 13, of senility.

William Harvey Reinhart, Polk, Ohio; College of Physicians and Surgeons, Baltimore, 1882; aged 69; died, June 7, of cerebral hemorrhage.

Henry E. Jewell, Oklahoma City; Hahnemann Medical College of Philadelphia, 1884; aged 68; died, May 10, at a local hospital of carcinoma.

C. B. Sproles, Bristol, Va. (licensed, Virginia, under Exemption Law of 1895); aged 75; died, May 3, at Benham, of chronic nephritis.

Andrew J. Graham, Little Rock, Ark.; University of Arkansas Medical Department, Little Rock, 1881; aged 64; died, May 4, of leukemia.

Arthur S. Scott, Laingsburg, Mich.; Detroit College of Medicine and Surgery, 1894; aged 62; died, May 17, of bronchopneumonia.

Franck Hyatt ✠ Washington, D. C.; University of Maryland School of Medicine, Baltimore, 1872; aged 75; died, June 2, of asthma.

William Edward Bridge, Bonham, Texas; American Medical College, St. Louis, 1899; aged 57; died, May 30, following an appendectomy.

Macy B. Searls, East Aurora, N. Y.; University of Buffalo Department of Medicine, 1869; aged 79; died, April 14, of arteriosclerosis.

Robert M. Little, East St. Louis, Ill.; Washington University Medical School, St. Louis, 1899; aged 60; died, May 25, of myocarditis.

Joseph Thomas Roberts, San Marcos, Texas; University of Louisville School of Medicine, 1896; aged 54; died, May 19, of myocarditis.

Franklin H. Maxam ✠ Princeton, Ind.; Bellevue Hospital Medical College, New York, 1877; aged 76; died, May 31, of pneumonia.

Commodore I. Cain, Rome, Ga.; Meharry Medical College, Nashville, Tenn., 1891; aged 64; died, May 22, of erysipelas of the face.

Elisha I. Hook ✠ Chicago; Rush Medical College, Chicago, 1889; aged 67; died, May 25, at Mobile, Ala., of arteriosclerosis.

Chester Isaac Pease, Calumet, Okla.; Rush Medical College, Chicago, 1889; aged 60; died, May 18, of angina pectoris.

Manton A. Floyd, St. Stephens, S. C.; College of Physicians and Surgeons, Baltimore, 1893; aged 56; died, April 25.

John B. Cary, Donnellson, Ill. (licensed, Illinois, 1878); aged 82; died, June 5, of cerebral hemorrhage.

J. G. Roberts, Peel, Ark. (licensed, Arkansas, 1903); aged 66; died, April 1, of chronic nephritis.

David F. Laughlin, Clyde, Kan. (licensed, Kansas, 1902); died, May 17.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

J. P. FERNEL (FURNO) AND F. O. CARTER

A "Plastic Surgeon" and an "Eye Specialist" Lose Their Illinois Licenses

A Chicago paper for June 22, 1926, under the heading "Two Doctors Lose Right to Practice Here" carried the following item:

> "J. Paul Fernel, self-styled plastic surgeon, and Dr. Franklin O. Carter, who advertises that he is an eye specialist, yesterday lost the right to practice medicine in Illinois. The medical committee of the state board of registration revoked their licenses.
>
> "Fernel, who lost his license for the second time in nine years, was charged with having operated on the face of Mrs. Bertha Long, 6237 South Park Avenue. He used the knife on Mrs. Long's face, saying he would make her beautiful. The operation was a failure, according to the testimony, and resulted in disaster for Mrs. Long.
>
> "In the testimony against Carter, attorneys representing Elino Mancino, who lost his eye after a Carter operation for cross-eyes, charged at least eight persons had lost their sight following similar operations."

FERNEL'S PROFESSIONAL RECORD

John Paul Fernel's name originally was Giovanni Furno. He was born in Italy in 1889 and was graduated by the Illinois College of Medicine in 1911, receiving an Illinois

ARE YOU SICK?

Read This Announcement And Learn The Truth

My methods are differ. ent from others. I use only the latest and most modern scientific apparatus and machines obtainable. I treat each patient for the exact condition from which they suffer. My reputation has been built on the remarkable results I have obtained in many cases after all other forms of treatment failed. I don't care what treatment you have taken, how long you have been sick or what your sickness is. If your case is curable I will tell you so, if it is not curable I will not accept you as a patient.

My careful and thorough examination including the use of my powerful X-ray often reveals your true condition and cleverly. Thus doing away with all guess-work, I find it is necessary to use three new and modern methods in order to give my patients the best results.

Come to Me

My offices are among the finest in this country and contain many wonderful machines and scientific inventions, the same as used with such great success by the leading Doctors of Europe. I have a complete Laboratory where my patients receive their medicines, without going to a drug store outside; here I also make my examination of the urine, blood, etc., and keep on hand a complete supply of the latest serums for injections. No one is better prepared to give you the results you want at the charges you can afford to pay. I want to convince you that my treatment is the best, my methods the latest, my examination the most careful, and show you that I understand your condition. I will charge nothing for Consultation, Advice and Examination, including the X-Ray when you take treatment. I want your confidence, I want you to tell me your troubles in your own language and then let me show you what I can do.

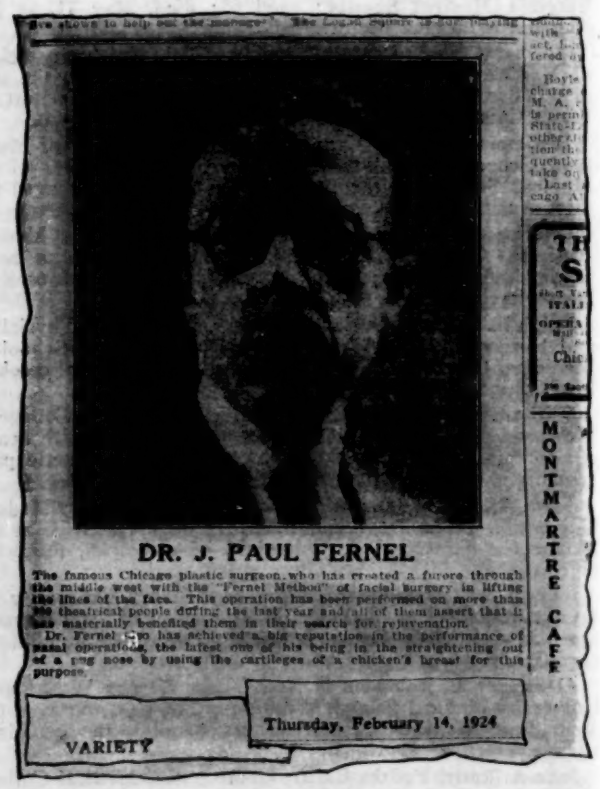
Dr. G. FURNO

461 Gratiot Avenue Detroit, Mich.

A greatly reduced photographic reproduction of one page of a six-page advertising leaflet used by J. P. Fernel when he was in Detroit, Michigan. At that time Fernel had not changed his name from Giovanni Furno to its present form. The other five pages of the leaflet were in as many foreign languages.

license the same year and a Michigan license, through reciprocity with Illinois, in 1916. Furno's Illinois license was first revoked in June, 1920, because of dishonorable conduct. Furno's license was restored by the Illinois board in 1922 during the tenure of office of the notorious W. H. H. Miller, who was later convicted of selling licenses, and removed.

For some time prior to 1916, Furno lived in Chicago. About that time he went to Michigan and opened an office in Detroit. In June, 1919, THE JOURNAL received a request from the Detroit authorities for information regarding Furno, who, it was alleged, was at that time advertising (as "G. Furno")



DR. J. PAUL FERNEL

The famous Chicago plastic surgeon who has created a furore through the middle west with the "Fernel Method" of facial surgery in lifting the lines of the face. This operation has been performed on more than 200 theatrical people during the last year and all of them assert that it has materially benefited them in their search for rejuvenation.

Dr. Fernel also has achieved a big reputation in the performance of nasal operations, the latest one of his being in the straightening out of a pug nose by using the cartileges of a chicken's breast for this purpose.

Thursday, February 14, 1924

VARIETY

MONTMARTRE CAFE

After Giovanni Furno became J. Paul Fernel and moved to Chicago, he went into the "plastic surgery" field, having taken lessons from a Chicago advertiser in the same line of business. Here is reproduced a piece of publicity that appeared in a theatrical publication. The up-to-date seeker of publicity does not purchase advertising space; he hires a press agent, who gets him before the public by means of news stories.

to treat "nervousness, manly weakness and any other blood disease." Later, according to Detroit officials, Furno was served with a warrant and brought in to the police court, where he pleaded "Not guilty," was bound over to a higher court under $500 bail and before the case was called to the higher court, "jumped his bail" and left the state. The Detroit officials reported that Furno's method was to get foreigners as patients and compel them to disrobe and enter an adjoining room for physical examination, and while this was going on a confederate (Furno's alleged wife) went through the pockets of the victim to determine the amount of the fee it was possible to obtain. As the result of these methods, the Detroit papers recorded in July, 1919, that nine of Furno's patients started suit against him.

Another part of Furno's scheme, according to the Michigan authorities, was that of collecting additional money from those of his victims who had about reached the limit of their donations, by purporting to have a blood examination made. The Michigan authorities sent the American Medical Association some of the "analytical reports" said to have been used by Furno in furthering this scheme. These bore the legend "International Medical Laboratory, Columbus Building, 32 North State Street, Chicago, Ill." There was no such concern as the "International Medical Laboratory," nor any Columbus Building at 32 North State Street. There is a "Columbus Memorial Building" at 31 North State Street, but there was not and never had been such an institution as the "International Medical Laboratory" in this building.

From Detroit Furno came back to Chicago, and, in October, 1919, is said to have entered into an agreement with a Chicago "plastic surgeon" (of the advertising type) to be taught the gentle art of removing sagging cheeks, baggy eyelids, hump

noses, wrinkles, etc. While his preceptor was on a trip out of the state, Furno is said to have seized the opportunity to copy a list of the "plastic surgeon's" patients. On the return of the man from whom he was taking lessons, Furno discontinued his instruction and opened up a competing office in the city of Chicago. This, too, in spite of the alleged fact that he had entered into a contract not to practice "plastic surgery" in Chicago.

In the latter part of 1923, Furno, under his new name Fernel, corresponded with the Michigan authorities, seeking information regarding another Chicago physician who was apparently his most active competitor in the plastic surgery field. This other individual, like Fernel, had previously been in trouble in Michigan, and, also like Fernel, had "jumped his bail" and left the state. Also he obtained his Illinois license during the Miller régime. The fight between these two "plastic surgeons" was a spirited one, but Fernel's competitor, while having a professional record far worse than Fernel's, seems to have kept the upper hand—so far.

CARTER'S RECORD

Franklin O. Carter has worked the cure-for-cross-eyes game in and from Chicago. The name of F. O. Carter appears first in Polk's Medical Directory in 1902, in which issue he had a paid notice claiming to be a physician graduated from Toronto University, Toronto, Ontario, 1897, and to be a postgraduate of the Chicago College of Ophthalmology and Otology in 1898. He was then located at 70 West Madison Street. This was in 1902, although Carter was not legally licensed to practice medicine in Illinois until 1904, at which time he received a state license and gave as his school of graduation, not Toronto University, but Jenner Medical College. The records of Toronto University show that no man by the name of F. O. Carter was ever graduated by that school in medicine.

The records of the Jenner Medical College show that Carter was graduated from the school in 1904. We have no record of any such institution as the "Chicago College of Ophthalmology and Otology," at which Carter claims to have taken postgraduate work in 1898. Possibly it was one of the numerous concerns which teach spectacle fitting by mail.

In July, 1918, Franklin O. Carter was called before the Department of Registration and Education of the State of Illinois to explain certain things about his practice. It was brought out at this hearing that, while Carter was graduated by Jenner Medical College in 1904, "his diploma has an erasure on it so as to give out the impression that he graduated at a different time." Carter was asked about this erasure but denied that it had been done with his knowledge or consent.

A clipping from the Chicago *Tribune,* dated March 10, 1922, reads as follows:

> "Damages of $15,000 for the loss of the sight of his right eye were awarded to Irving Nilson, 3836 North Whipple Street, yesterday from Dr. Franklin O. Carter, an eye specialist, with offices at 120 South State Street, by a jury in Judge Pam's court. It was the second trial of the suit, the first resulting in a verdict of $11,000 for Nilson."

Another clipping from the Chicago *Daily News* of November 20, 1922, states that a jury, before Judge Lee S. Carrier, in the Superior Court, had awarded one Alexander Hockerin judgment of $25,000 damages from Dr. Franklin O. Carter for the loss of his right eye.

Chicago newspapers for October 27, 1923, record the fact that on October 26, 1923, Franklin O. Carter filed a voluntary petition in bankruptcy in the District Court. His liabilities were scheduled at more than $45,000 and his assets listed at slightly more than $6,000. According to the petition, Carter owed $25,100 to Alexander Hockerin and $15,100 to Irving Nilson, both of them debts incurred through damage suits brought against Carter for injuring the eyes of the victims.

In March, 1925, a Chicago attorney brought to our attention the case of his client Mr. S., who claimed that in September, 1922, he answered a Carter advertisement, and after receiving the "come-on" literature, came in from his home in Wisconsin to Chicago, and was operated on by Carter and his associate. Mr. S. claims that, after putting in a local anesthetic they "clipped the muscles in both eyes with a small curved pair of snips." They told him to go back to work, and come back later for the final operation. In November, 1922, Mr. S. came back to Chicago, and claims that Carter and his associate cut the muscles in his left eye and took eight or ten stitches, and sent him back home. Before he got home he claims that his eye began to swell and the upshot of the case was that the eye became so badly infected that on December 3, 1922, it was removed. On April 23, 1925, according to his attorney, a jury rendered a verdict fixing damages in favor of Mr. S. against Franklin O. Carter for $21,500. The judge, however, considered this excessive and Mr. S., through his attorney, remitted $6,500 and judgment was entered for $15,000. It will be interesting to see whether poor S. is any more successful in getting damages than some of the other victims have been.

Cross Eyes
Straightened in 10 to 30 Minutes Without Pain
FREE
I Will Pay Your Railroad Fare to Chicago and Back
Here Is Positive Proof of My Claims
MAIL COUPON TODAY!
COME NOW! PAY LATER!!
Dr. Franklin O. Carter
177 NORTH STATE ST.
CHICAGO, ILL.

A greatly reduced reproduction of a full-page advertisement of Franklin O. Carter. In the original this advertisement occupied three square feet (18 by 24 inches).

So far as our records show Carter was licensed only in Illinois; Fernel (Furno) however, still holds a license in Michigan. Will he go back to that state, or will Michigan take action to prevent such a move? The Department of Education and Registration of Illinois is to be commended for its action in protecting the people of that commonwealth from incompetence and quackery.

Rest as Aid to Digestion.—To rest before eating a heavy meal is an aid to digestion. It is not always convenient to lie down, but the body and mind can be relaxed for a short period before and after eating. Sometimes it is necessary to work to the very time for taking nourishment. Whenever it is possible, slow down a little before meals. When very tired and very hungry, a cup of hot milk sipped slowly will delay the hunger for the time being. After a period of complete relaxation, the heavy meal will be enjoyed more, and unhealthful reaction which might have been felt from eating when overtired will be avoided. If there is time to rest and to change from work to other clothes, so much the better. Sometimes changing the apparel before dinner has a wholesome effect on the mind and aids digestion.—Wood, T. D., and Dansdill, T.: By-Ways to Health, 1925, p. 21.

Correspondence

MISTAKES IN TERMINOLOGY

To the Editor:—There can be no doubt as to the high quality of the scientific work of the medical profession in this country. The same cannot be said of the standard of scholarship as shown by many of our medical publications. Mistakes in the simplest Latin terminology are constantly seen which would never be made by those who had been educated in Europe.

One of the most frequent errors, which has lately been brought to my attention, occurs in connection with the words labium majus and labium minus, which have been frequently misspelled in excellent publications appearing in high class journals. Examples of such errors include "the left labium minorum," "the whole of the right labiae majorae and minorae" and the "right labia majora." One author has spoken in the same sentence of the "labiae" and the "labia."

The majority of physicians seem to have forgotten that majus is the neuter form of the word meaning greater, the masculine and feminine endings being major, and that the proper termination of the word meaning lesser is minor (masculine), minor (feminine) and minus (neuter).

Another frequent mistake in terminology is the failure to remember that words ending in "ma" are neuter. While nearly all Latin words ending in "a" are feminine, those in which the "a" is immediately preceded by "m" are always neuter, such as edema, ecthyma, leukoderma, sarcoma and chloasma.

HOWARD FOX, M.D., New York.

PRESERVATION OF WHITE CELL SOLUTIONS

To the Editor:—No doubt it is a common annoying experience for physicians to find their white cell solutions on standing contaminated with molds and especially yeasts. It has been experimentally proved that gentian violet even in high dilutions possesses the power of checking the reproductive mechanism of bacteria. I have applied this by adding one or two drops of gentian violet to the white cell solution (150 cc. of 0.5 per cent acetic acid) and have found no contaminating yeasts or molds after standing for a few months at room temperature.

MAX TRUMPER, A.M., Philadelphia.

SUBSTITUTES FOR EPHEDRINE

To the Editor:—The experimental and clinical investigations of the action of ephedrine, reported by us separately in a number of recent publications, were carried out with ephedrine sulphate or hydrochloride, made in the laboratory of pharmacology of Peking Union Medical College according to the method described by one of us (Chen, K. K.: A Pharmacognostic and Chemical Study of Ma Huang [Ephedra Vulgaris Var. Helvetica], *J. Am. Pharm. A.* **14**:191 [March] 1925). We have recently had some experience with a preparation of so-called ephedrine hydrochloride, which was sold by a druggist in Philadelphia who obtained it from an English drug house, the source and method of preparation being unknown. This sample of the drug was not effective clinically in the control of asthma in a patient who had been completely relieved by the Peking product (Miller). Experimentally it was capable of relaxing the bronchial spasm produced in pithed cats by physostigmine (Schmidt). Its melting point and optical rotation are not those of pure ephedrine hydrochloride, or of pure pseudo-ephedrine hydrochloride, its optical isomer, and it does not give the color reactions of ephedrine and pseudo-ephedrine (Chen). The nature of the material is therefore uncertain.

This is reported as a warning against the indiscriminate use of any preparation that does not meet the standards of identification that were described by Chen.

T. GRIER MILLER, M.D., Philadelphia.
K. K. CHEN, PH.D., Madison, Wis.
CARL F. SCHMIDT, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MORPHINE AND GLYCERYL TRINITRATE—ANOREXIA IN TUBERCULOSIS

To the Editor:—1. In a patient who has suffered from severe general convulsions at periods, I have been giving at the first suggestion of the onset of an attack liberal doses of glyceryl trinitrate, followed quickly by a large dose of morphine and atropine intramuscularly, followed by more glyceryl trinitrate. The patient is a woman past middle age, with a systolic blood pressure of 180. At the onset of a convulsion, it rises to 240 or 260. Does morphine modify the action of nitroglycerin in any way and does the reverse occur in such a case; i. e., does nitroglycerin modify the action of morphine? If so, in what way? 2. In the anorexia of tuberculosis, is it advisable to urge eating, even though food has to be swallowed without relishing it?

REGINALD VAN WOERT, M.D., Ravena, N. Y.

ANSWER.—1. Nitrites, or substances yielding nitrite in the body, have some value in lessening convulsions, especially those accompanied by high blood pressure. Morphine, as well as atropine, has a tendency to dilate the vessels of the skin, in this way reinforcing the vasodilator action of the nitroglycerin. The morphine is also endowed with antispasmodic action in certain types of convulsions.

2. The patient's anorexia does not lessen the need for improved nutrition in tuberculosis. It merely increases the difficulty of accomplishing this result. Urging a patient to eat must be done very tactfully and by the indirect suggestion of serving appetizing and attractive food, rather than by direct command. The patient should never be forced to eat, as this may arouse resentment and cause him to take less than he otherwise would.

DIATHERMY

To the Editor:—The recent visit to my office of an agent selling diathermy apparatus, his denial that tissue injuring can be done by promiscuous use of these machines in the hands of "panacea experts," and the reading of Thomas H. Cherry's article in THE JOURNAL, June 5, prompt me to make the following remarks: I may state, before going further, that I have used diathermy and believe it has a field along with all other heat-producing methods used in the healing art. Dr. Cherry says in his article that he has heated a dog's rectum and bladder to 52 C. without histopathologic changes. He also says that tissue is definitely destroyed at 60 C. and that changes probably begin to occur at temperatures varying between 55 and 58 C. (Osler's Modern Medicine **1**: 54, 55, 1907) heat exhaustion and insolation often reach 112 and 113 F., and that a temperature of 110 F. has been recovered from. I have had a case of heat exhaustion in which the temperature was 110 F., and the patient recovered. Osler further says under pathology in this article that the gross pathologic changes may be expressed in one phrase: general congestion of all organs, particularly the meninges of brain and cord. Microscopic studies show that the cells of the liver, the kidney and the nervous system all undergo parenchymatous degeneration, the nervous system, in particular, showing chromatolysis. These victims always have permanent mental and physical impairment following these extreme heats, showing that at temperatures of from 110 to 113 F., permanent tissue injury is done to the human body. Dr. Cherry states that 52 C. produces no histopathologic change in tissue. Now 52 C. equals 125.6 F.; 58 C. equals 136.4 F.; 60 C. equals 140 F. If temperatures of 110 F. and up produce detrimental tissue changes which can be checked physically by the microscope and clinically by symptoms of the victim, are we justified in believing that diathermy, given as it is, empiric as to temperature, does not produce locally what external heat may do to the whole body; namely, a permanent change in the tissues treated, which hastens their senility or degeneration? This subject needs more light and, certainly, caution.

EDWARD M. MIKKELSEN, M.D., Chicago.

ANSWER.—For the local application of medical diathermy, that is, the heating within physiologic limits of well defined parts of the body, it is permissible to raise the temperature to from 40 to 45 C. (104 to 113 F.) with the proviso that the individual tolerance be taken into consideration. The

patient should report a pronounced sensation of warmth but not a sensation of painful heat.

Temperatures beyond 45 C., while not necessarily leading to complete coagulation of albumin, produce injury in the tissues which is known as precipitation of globulins.

In general diathermy, usually called autocondensation, the safety limit is the raising of the temperature up to 2 degrees C. (3.6 degrees F.) above the normal. Higher temperatures are apt to lead to severe disturbances. In deciding on the heating of parts of the body, it should always be kept in mind that in applying medical diathermy it is absolutely unnecessary to produce excessive degrees of heat. The desirable physiologic and therapeutic effect is brought about by moderate heating, causing an active hyperemia and the subsequent amelioration of the local metabolism.

GLYEUTHYMENOL

To the Editor:—I frequently receive circulars advertising glyeuthymenol. Can you give me any information concerning the reliability of the concern and the value of the product?

F. E. PERKINS, M.D., Watertown, N. Y.

ANSWER.—A report of the Council on Pharmacy and Chemistry on Glyeuthymenol was published in THE JOURNAL, Nov. 15, 1924, page 1606.

In the information furnished the Council by the proprietors, Nixon Stuart & Barker, the product was stated to have the following composition: thymol, 30 grains; menthol, 20 grains; eucalyptol, 20 minims; synthetic oil of wintergreen, 30 minims; Indian gum powder, 3½ pounds; sodium benzoate, 10 ounces; glycerin, 2½ gallons; zinc sulphate, 6 ounces, and water, 7½ gallons.

The Council reported that the advertising designates glyeuthymenol as a "vaginal prophylactic" and stresses its use as a preventive of gonorrhea and as a contraceptive, thus: "The douche cannot always be effective for protoplast may lurk in microscopic cavities irremovable and untouchable by the douche. While glyeuthymenol in instant union with mucous fluids must needs penetrate the most infinitisimal fissure there to accomplish its task of prophylaxis. If you accept the hypothesis of contra peristalsis of the uterus in orgasm the douche is doubly ineffective, while glyeuthymenol will pass into the uterus with protoplast if such be present. If there is contra peristalsis at orgasm glyeuthymenol would be truly prophylactic against internal uterine Gonorrhoea."

The Council concluded that glyeuthymenol is an unscientific mixture that is sold with claims which are misleading and unwarranted and that its use is inimical to the public health.

RETENTION OF URINE AND BLADDER PARESIS

To the Editor:—A woman, aged 32, cannot void. She has to be catheterized two or three times a day regularly to relieve ballooning up of the bladder and pain. The urine is normal. The general physical examination is negative. I have used at intervals strychnine, sodium bicarbonate, atropine and all kinds of urinary medicines which might have helped, but without avail. The only relief is by catheterizing regularly and "strapping the bladder," putting a pad over it and securing it by applying adhesive plaster across the abdominal wall. After a couple of weeks this will relieve the patient so that she can urinate for a like period, when it recurs. Can you suggest any further measures or a cause of this paresis.

REGINALD VAN WOERT, M.D., Ravena, N. Y.

ANSWER.—Complete or incomplete retention of the urine in the female bladder is based either on central disturbances or on partial dislocation of the bladder produced in prolapsus uteri or by instrumental delivery. The presence of a foreign body within the viscus or a pedunculated endovesical tumor may act as an obstruction to the internal urethral orifice. In order to arrive at a causative diagnosis indispensable for a rational treatment, a thorough neurologic, gynecologic and cystoscopic examination will be essential.

"METHENAMINE"

To the Editor:—Can you tell me anything about a drug "Methenamine" and where I might get it It was mentioned in an abstract in THE JOURNAL, June 5, p. 631.

E. W. W., M.D., Pittsburgh.

ANSWER.—Methenamine is the name now used in the new U. S. P. X, which became official, January 1, for the substance described in the old pharmacopeia as hexamethylenamine; it is a more convenient contraction of the scientific name hexamethylenetetramine. All manuscripts sent to THE JOURNAL are, of course, edited in accordance with the nomenclature of the latest edition of the Pharmacopeia.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, July 13-16. Sec., Dr. S. W. Welch, Montgomery.
ARIZONA: Phoenix, July 6. Sec., Dr. W. O. Sweek, 404 Heard Bldg., Phoenix.
CALIFORNIA: San Francisco, July 12-15. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.
COLORADO: Denver, July 6. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
CONNECTICUT: Hartford, Reg. Bd., July 13-14. Sec., Dr. Robert L. Rowley, 79 Elm St., Hartford. Homeo. Bd., New Haven, July 13. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.
DISTRICT OF COLUMBIA: Washington, July 13. Sec., Dr. Edgar P. Copeland, Suite 110, 1801 Eye St., N. W., Washington.
HAWAII: Honolulu, July 12-15. Sec. Dr. A. L. Davis, 1254 Emma Street, Honolulu.
INDIANA: Indianapolis, July 13-15. Sec., Dr. Wm. T. Gott, 421 State House, Indianapolis.
MAINE: Augusta, July 6-7. Sec., Dr. Adam P. Leighton, 192 State St., Portland.
MASSACHUSETTS: Boston, July 13-15. Sec., Dr. Frank M. Vaughan, Room 144, State House, Boston.
NORTH DAKOTA: Grand Forks, July 6. Sec., Dr. G. M. Williamson, Grand Forks.
OREGON: Portland, July 6-8. Sec., Dr. U. C. Coe, 1208 Stevens Bldg., Portland.
PENNSYLVANIA: Philadelphia and Pittsburgh, July 6-10. Director Education, C. D. Koch, Harrisburg.
SOUTH DAKOTA: Custer, July 20. Director, Med. Lic., Dr. H. R. Kenaston, Bonesteel.
UTAH: Salt Lake City, July 6. Dir., Mr. J. T. Hammond, 412 State Capitol Bldg., Salt Lake City.
WASHINGTON: Olympia, July 6. Director, Dept. of Licenses, Mr. Charles R. Maybury, Olympia.
WEST VIRGINIA: Martinsburg, July 6. Sec., Dr. W. T. Henshaw, Charleston.

Wyoming February Examination

Dr. G. M. Anderson, secretary of the Wyoming Board of Medical Examiners, reports the written examination held at Cheyenne, Feb. 1-3, 1926. The examination covered 12 subjects and included 120 questions. An average of 75 per cent was required to pass. One candidate took the examination and passed. Three candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
University of Colorado School of Medicine		(1925)	89.2

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University Medical School		(1923)	Utah
St. Louis University School of Medicine		(1906)	Oklahoma
University of Tennessee College of Medicine		(1913)	Oklahoma

West Virginia January Examination

Dr. W. T. Henshaw, secretary of the West Virginia Public Health Council, reports the oral, written and practical examination held at Charleston, Jan. 19, 1926. The examination covered 11 subjects and included 108 questions. An average of 80 per cent was required to pass. Of the 8 candidates examined, 4 passed and 4 failed. Seven candidates were licensed by reciprocity and 1 by endorsement of credentials. The following colleges were represented:

College	PASSED	Year Grad.	Number Passed
Howard University School of Medicine		(1925)	1
Washington University School of Medicine		(1924)	1
Medical College of Virginia		(1924)	1
University of Pozsony, Hungary		(1909)*	1

College	FAILED	Year Grad.	Number Failed
University of Louisville School of Medicine		(1925)	1
Meharry Medical College		(1925)	1
University of Catania, Italy		(1899)*	1
University of Naples, Italy		(1923)*	1

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College		(1897)	California
University of Louisville School of Medicine		(1910)	Kentucky
Tulane University of Louisiana School of Medicine		(1923)	Alabama
University of Maryland School of Medicine		(1914), (1923)	Maryland
Jefferson Medical College of Philadelphia		(1923)	Maryland
Medical College of Virginia		(1924)	Virginia

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Kentucky School of Medicine		(1906)	U.S.P.H.S.

* Verification of graduation in process.

Book Notices

L'EXPLORATION FONCTIONNELLE DU FOIE ET L'INSUFFISANCE HÉPATIQUE. Par Drs. Noël Fiessinger et Henry Walter. Paper. Price, 30 francs. Pp. 387, with illustrations. Paris: Masson & Cie, 1925.

The increasing interest in the functional study of the liver is shown by the appearance of this volume. In scope and subject matter it is similar to other recent treatises in English and German. The authors are familiar with the work done in other countries, but the references are almost wholly French. As such it is of particular value as a general rather than critical summary of the French literature and point of view in a confused and disputed field. American readers will be most struck by the insistence that the extrahepatic formation of bilirubin is largely a pathologic phenomenon. The formation of urobilin in the tissues likewise is denied by the most recent American investigators. One agrees with the conception of "asynergie fonctionnelle" and the necessity for "l'exploration plurifonctionnelle" in hepatic disease. The selection of the urobilin in the urine, the Hay test, the ammonia coefficient in the urine, the determination of glycosuria after giving fructose, and the phenoltetrachlorphthalein test as the most useful tests for this purpose is open to question. The American practice justifiably places the chief emphasis on the study of the blood. The same difference in point of view is evident in the discussion of the clinical evidences of hepatic insufficiency. The authors give a much needed warning when, in conclusion, they point out the difficulties in the laboratory study of functional changes in the liver. Functional tests are useful in confirming clinical findings, but decisions affecting prognosis or the direction of treatment should be chiefly determined by the clinical examination. They add further that though this last remains the province of the clinician, he should be a well grounded and keen observer and free from that superficial haste which, in order to see rapidly, examines poorly.

THE NATIONAL FORMULARY. By Authority of the American Pharmaceutical Association. Prepared by the Committee on National Formulary of the American Pharmaceutical Association. Official from July 1, 1926. Fifth edition. Buckram. Price, $3.50. Pp. 545. New York: Chemical Catalog Company, 1926.

The fifth edition of the National Formulary appears somewhat later than the new (tenth) edition of the U. S. Pharmacopeia, which became official, January 1. The former becomes official, July 1. The new edition is similar in general plan to the preceding edition, Part I containing formulas, Part II containing descriptions of drugs, and Part III containing descriptions of various tests and reagents with various tables. The number of formulas has been decreased by thirty-five, and the number of descriptions of drugs increased by twenty-five. The increased volume of the new edition is largely accounted for by the addition of a great deal of tabular matter to Part III.

The preface states that the work of revision has been carried on coordinately with that of the Committee of Revision of the U. S. Pharmacopeia, and the following statement of purpose and scope emphasizes this fact:

> The purpose of the National Formulary is to supply definite formulas for preparations that are sufficiently used in medical practice throughout the United States and its possessions, for which formulas are not included in the Pharmacopeia of the United States, and to provide standards and tests for the identity, quality and purity of the essential ingredients used in those formulas for which standards are not provided in the Pharmacopeia of the United States, so that uniformity in the physical properties and therapeutic action of these constituents and of the preparations will be assured.

This statement is rather less frank and outspoken than the similar one in the fourth edition, which ran, "The scope of the present National Formulary is the same as in previous issues, and is based on medical usage rather than on therapeutic ideals." As far as usefulness from the point of view of therapeutics is concerned, the fifth is but a slight improvement on the fourth edition: both describe a host of useless and superfluous drugs and a comparatively small percentage of drugs which have real therapeutic value.

MODERN MEDICINE. Its Theory and Practice in Original Contributions by American and Foreign Authors. Volume I. Bacterial Diseases—Non-Bacterial Fungus Infections—The Mycoses. Edited by Sir William Osler, Bart., M.D., F.R.S. Third edition. Reedited by Thomas McCrae, M.D., Professor of Medicine in the Jefferson Medical College, Philadelphia, Assisted by Elmer H. Funk, M.D., Assistant Professor of Medicine, Jefferson Medical College, Philadelphia. Third edition. Cloth. Price, $9. Pp. 845, with 58 illustrations. Philadelphia: Lea & Febiger, 1925.

The third edition of the best known system of medicine appears twelve years after the first volume of the second edition was published. A moment's thought will convince any physician of the fact that new discoveries have been sufficient in scope to warrant a complete revision of the work. In the preface Dr. McCrae lists only a few of the significant contributions, calling attention particularly to the fact that diseases such as botulism and epidemic encephalitis are distinctly new, and that methods of treatment of scarlet fever, bronchial asthma and diabetes have been revolutionized. Several of the noteworthy contributors to the second edition have died in the interval that has elapsed. It has been necessary to substitute for them recent investigators in the fields concerned. The present volume opens with two noteworthy contributions—an essay on the evolution of internal medicine by William Osler, and an introduction into the study of infectious diseases by Ludvig Hektoen. These scholarly essays serve to orient the general reader and to give him a proper point of view for the consideration of the individual articles that follow. The first volume covers bacterial and fungus infections. When a practical presentation of medical knowledge such as this has once been achieved, it is a worthwhile task to keep it constantly up to date and of a quality established by the original series. This the editor has done exceedingly well.

DIE MALARIABEHANDLUNG DER PROGRESSIVEN PARALYSE. Unspezifische Therapie der Metalues des Zentralnervensystems mittels künstlicher Erzeugung einer akuten Infektionskrankheit. Von Privatdozent Dr. Josef Gerstmann, Assistent der Universitätsklinik für Psychiatrie und Nervenkrankheiten in Wien. Mit einem Vorwort von Professor Dr. Julius Wagner-Jauregg, Vorstand der Universitätsklinik für Psychiatrie und Nervenkrankheiten in Wien. Paper. Price, 12 Goldmarks. Pp. 229, with 16 illustrations. Vienna: Julius-Spring, 1925.

This is the most comprehensive work thus far published on the malaria treatment of general paralysis. The book represents an experience of seven years with malaria treatment at the Vienna psychiatric clinic under the directorship of Wagner-Jauregg. While more than a thousand general paralytic patients have been inoculated with malaria, the author deals more particularly with the results in a series of 400 cases treated up to 1922. He thus eliminates from consideration the more recently treated cases, in which the results might be regarded as inconclusive because of the relatively short period that has elapsed since the completion of treatment. The best therapeutic results have been obtained in middle-aged patients in the early stages of general paralysis. As contraindications, the author mentions especially serious heart lesions and obesity. The technic of inoculation is simple. From 2 to 4 cc. of blood is withdrawn from a malaria patient and injected directly under the skin. If it is desired to inoculate patients at a distance, the blood may be mixed with a solution of sodium citrate. In this way its infectivity may be preserved for thirty-six hours or longer. Following a subcutaneous inoculation, the incubation period ranges from seven to fourteen days. The amount of fever and the number of malarial paroxysms that a patient is allowed to have are graduated according to the patient's condition and the way the treatment is borne. The average is from eight to ten paroxysms. The fever usually rises above 104 in each attack, and an axillary temperature of 107.6 has been recorded. A cardiac stimulant may be administered during the course of the fever. The malaria may be promptly cured by quinine given in 0.5 Gm. doses twice a day. While some clinicians advise following malarial treatment by a course of neo-arsphenamine, the author believes that the beneficial results obtained from malaria are to be attributed to the malaria itself rather than to any subsequent treatment. Gerstmann believes that it is permissible and perfectly safe to carry out the malarial treatment even in localities where anopheles mosquitoes are indigenous. It is pointed out that the malarial parasite propagates in the human host in an

asexual cycle and that, as a result, after the first few passages from patient to patient, gametocytes are no longer present in the blood. The author accepts as conclusive the experimental work done on this problem, which apparently demonstrated that anopheles mosquitoes were not able to transfer this form of artificial malaria from one person to another. In 30 per cent of the cases a full remission occurred, with disappearance of mental symptoms and restoration of former ability to work. In an additional 14 per cent a partial remission occurred with capacity to return to work, although some residual defect symptoms persisted. The death rate was 10 per cent. The remaining 43 per cent of the patients were not influenced by the treatment or showed only transitory improvement. The clinical improvement is not necessarily accompanied by any corresponding serologic improvement. It was noted, however, that a serologic improvement may appear some months or even years after a clinical remission is established. The author discusses the interesting question as to the possible influence of the treatment on the brain. He believes that the observations so far made indicate that when a clinical remission occurs there is a corresponding lessening of the pathologic process, and possibly an arrest of the progress of the brain disease. Gerstmann's work forms a most valuable contribution to the treatment of neurosyphilis. The observations reported in other European clinics, as well as studies made in this country, afford good reason to believe that we have in malaria a therapeutic agent of great value in general paralysis. Therefore it becomes more important than ever to recognize and treat the disease in its earliest stages.

THE ART OF MEDICAL TREATMENT. With Reference Both to the Patient and to His Friends. By Francis W. Palfrey, M.D., Visiting Physician, Boston City Hospital. Cloth. Price, $4.50 net. Pp. 463. Philadelphia: W. B. Saunders Company, 1925.

Dr. Palfrey has provided what is in every sense of the word a practical book, replete with suggestions as to the care of the patient. The therapeutic directions are classified under the headings first thoughts, placing, the diet, remedial, supportive, palliative, minor care, nursing, information and preventive. The material under the heading "information" usually appears in other books under prognosis, although in this instance the physician is even told carefully what he may tell the patient's friends. The prescriptions are in practically every instance for pharmacopeial or well established products, and quite simple in their compounding. The rapid progress of our knowledge is responsible for several instances in which the book fails to mention methods of treatment that have been developed within the past year, particularly in tetany and scarlet fever. Following the discussion of treatment of various diseases are appendixes on the general topic of stimulation, bed-sores, communicable diseases, diet, duodenal intubation, blood transfusion, drugs, the treatment of metallic poisoning, and quackery and cults. The last is a succinct statement of the medical attitude toward modern cult practices, with the conclusion that education of the public in medical matters and the progress of medicine must eventually dispose of these fallacies.

THE ENDOCRINE ORGANS: An Introduction to the Study of Internal Secretion. Part II. The Pituitary; the Pineal; the Alimentary Canal; the Pancreas, and the Sex Glands. By Sir E. Sharpey-Schafer, LL.D., D.Sc., M.D. Second edition. Cloth. Price, $7. Pp. 177-418, with 117 illustrations. New York: Longmans, Green & Co., 1926.

Continuing study of the glands of internal secretion is sufficient reason for new editions of some of the classic volumes in this field. One of the best books for many years has been this by the professor of physiology in the Edinburgh University, which presents material from the scientific investigative aspects rather than from the empiric, clinical use of glandular extracts. The present volume is devoted largely to a consideration of work on the pituitary gland, with additional chapters on the pineal body, the pancreas and the sex glands. The literature has been combed thoroughly for material, but evidently the author has not been especially critical in his analysis of the things that he has read. As a work of reference to current literature, this volume may be especially recommended.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits.

LA CONSTIPATION: Comment l'eviter? Comment la guérir? Par Victor Pauchet, et H. Gaehlinger. Préface du Professeur P. Carnot. Paper. Price, 30 francs. Pp. 223, with 19 illustrations. Paris: Gaston Doin & Cie, 1926.

Monograph concluding that constipation is an important condition which requires the best and most complete knowledge that physician and surgeon can give to it.

LEHRBUCH DER GYNÄKOLOGIE FÜR STUDIERENDE UND AERZTE. Von Dr. Med. Robert Schröder, Ord. Professor für Geburtshilfe und Gynäkologie und Direktor der Universitäts-Frauenklinik in Kiel. Second edition. Paper. Price, 35 marks. Pp. 725, with 333 illustrations. Leipsic: F. C. W. Vogel, 1926.

Modern German gynecologic practice—elucidated with beautiful illustrations.

LA GASTROSCOPIE: Etude clinique et expérimentale. Par le Docteur Jean Rachet. Travail du service de M. le Docteur Bensaude, médecin de l'hôpital Saint-Antoine. Paper. Price, 20 francs net. Pp. 117, with 46 illustrations. Paris: Gaston Doin & Cie, 1926.

Monograph with bibliography concluding that the method merits more study.

L'INSULINE. Par Dr. Emile Aubertin, Chef de clinique médicale à la Faculté de médecine de Bordeaux. Préface du Professeur agrégé P. Mauriac, Médecin des hôpitaux. Paper. Price, 45 francs net. Pp. 490. Paris: Gaston Doin & Cie, 1926.

French monograph with bibliography and summary of literature through 1925.

PRÉCIS DE DIÉTÉTIQUE ET DES MALADIES DE LA NUTRITION CHEZ L'ENFANT ET CHEZ L'ADULTE. Par Georges Mouriquand, Professeur à la Faculté de médecine de Lyon. Cloth. Price, 60 francs. Pp. 817, with 63 illustrations. Paris: Gaston Doin & Cie, 1926.

Poorly printed French textbook of dietetics—general and not especially scientific or up to date.

PATHOLOGISCHE HISTOLOGIE. EIN UNTERRICHTSKURS FÜR STUDIERENDE UND AERZTE. Von Dr. Max Borst, O. ö. Professor der allgemeinen Pathologie und der pathologischen Anatomie an der Universität München. Second edition. Paper. Price, 48 marks. Pp. 435, with illustrations. Leipsic: F. C. W. Vogel, 1926.

Second edition of handsomely illustrated German textbook.

THE INTERNATIONAL MEDICAL ANNUAL: A Year Book of Treatment and Practitioner's Index. Forty-Fourth Year, 1926. Cloth. Price, $6 Pp. 555, with illustrations. New York: William Wood & Co., 1926.

British single volume alphabetical analysis in the nature of the American year book series.

ARABIAN MEDICINE AND ITS INFLUENCE ON THE MIDDLE AGES. By Dr. Donald Campbell. Volumes I and II. Cloth. Price, $8 per set. Pp. 442. New York: E. P. Dutton & Co., 1926.

A learned and well written treatise prepared by the author under the tutelage of Charles Singer.

DAS THYREOTOXIKOSESYNDROM UND SEINE REAKTION BEI KLEINEN JODDOSEN. Von Johannes Wahlberg. Paper. Pp. 148, with illustrations. Helsingfors: Mercators Tryckeri, 1926.

Study of use of iodine in disturbances of the thyroid, concluding that Plummer's views are right.

THE ETHICS OF BUSINESS: A Study of Current Standards. By Edgar L. Heermance. Cloth. Price, $2. Pp. 244. New York: Harper & Brothers, 1926.

A general analysis of rules of life adopted by various trade and professional organizations.

ABHANDLUNGEN AUS DER KINDERHEILKUNDE UND IHREN GRENZGEBIETEN. Herausgegeben von A. Czerny. Heft 10. Experimentelle Untersuchungen über Darmbakterien. Von Eugen Stransky, und Alfons Trias. Paper. Price, 4.20 marks. Pp. 44. Berlin: S. Karger, 1926.

ONDERZOEKINGEN GEDAAN IN HET PHYSIOLOGISCH LABORATORIUM DER RIJKSUNIVERSITEIT TE UTRECHT. Door H. Zwaardemaker. Series six, part six. Paper. Pp. 164, with illustrations. Utrecht: A. Oosthoek, 1926.

ARBEIJDER FRA FODEAFDELING OG GYNÆKOLOGISK AFDELING RIGSHOSPITALET. Udgivet af S. A. Gammeltoft. Vol. III. Paper. Pp. 252, with illustrations. Copenhagen: Levin & Munksgaard, 1926.

HISTORICO DA PROTECÇÃO A' INFANCIA NO BRASIL 1500-1922. Pelo Dr. Moncorvo Filho, Director-fundador do Departamento. Paper. Pp. 383. Rio de Janeiro: Pauio, Pongetti & C., 1926.

Medicolegal

Sleep and Negligence—Physician's Bills as Evidence

(Bushnell v. Bushnell (Conn.), 131 Atl. R. 432)

The Supreme Court of Errors of Connecticut says that this action was brought by a wife against her husband to recover damages for personal injuries alleged to have been caused by his negligence while they were riding together in an automobile which he was driving, when he momentarily fell asleep, with the result that the automobile ran off the highway and struck a tree, with consequent injury to the plaintiff, who was also asleep at the time of the accident. The court holds that, in Connecticut, with certain exceptions, a wife may maintain an action against her husband for personal injuries due to his negligence. Then came the question, which the trial court submitted to the jury, whether, in view of the circumstances preceding and surrounding the accident, the fact that the defendant momentarily fell asleep constituted negligence on his part; and it is held that the issue was rightly submitted to the jury, which rendered a verdict for the plaintiff.

There is surprisingly little authoritative discussion in decisions or textworks as to the relation of sleep to the doctrines of negligence, although in a number of cases it seems to have been assumed that it constitutes contributory negligence for one in a position of peril to become incapacitated by sleep from protecting himself from harm. That principle, however, did not quite reach to the situation here. While the condition of mind of the person doing harm is not to be regarded in determining liability within the proper field of the doctrines of negligence, yet those doctrines of necessity presuppose that the person whom it is sought to charge is capable of sense perceptions and judgment. On this basis, by the great weight of authority, the insane person, who is wholly irresponsible, is not chargeable with liability on the ground of negligence. Certainly in all reason he who, stricken by paralysis, or seized by an epileptic fit, still continues with his hands on the wheel of the automobile he was driving, and, unconscious, so directs it as to cause its collision with another, cannot be held negligent for the way in which he controlled it; and no more can he who exercises a like direction after he has been overtaken by sleep. In such a case the question must be, Was the defendant negligent in permitting himself to fall asleep? The defendant here argued that, granted this premise, then he could not be charged with negligence because no man can tell when sleep will fall on him. It is probably true that one cannot ordinarily fix with certainty on the precise moment when one lapses into unconsciousness, but it is not true that ordinarily sleep comes unheralded. Particularly would this be true where the onset of sleep is due to the prolonged action of a uniform excitant associated with little voluntary movement and a large degree of muscular relaxation, acting on one who has become more or less fatigued and is sitting down in a warm atmosphere. Sleep in such a situation does not come on one unawares, and, by watching for indications of its approach or heeding circumstances that are likely to bring it about, one may either ward it off or cease an activity capable of danger to himself or to others.

There are few ordinary agencies so fraught with danger to life and property as an automobile proceeding on the highway freed of the direction of a conscious mind, and, because this is so, reasonable care to avoid such a danger requires great care. In any ordinary case, one cannot go to sleep while driving an automobile withouting having relaxed the vigilance which the law requires, without having been negligent. It lies within his own control to keep awake or cease from driving. And so the mere fact of his going to sleep while driving is a proper basis for an inference of negligence sufficient to make out a prima facie case, and sufficient for a recovery, if no circumstances tending to excuse or justify his conduct are proved.

The defendant testified to having paid a hospital bill and a physician's bill, and a certain sum for a nurse for the plaintiff. He apparently paid them as charges for which he was himself directly and primarily obligated to respond. Such payments might have some value as corroborating testimony as to the seriousness of the plaintiff's injuries; and the bills, which were receipted, might, if otherwise unobjectionable, be placed in evidence to corroborate the defendant's testimony as to these payments. But so much of the physician's bill as briefly described the plaintiff's injuries was hearsay, and the bill ought not to have been admitted until those statements had been in some way erased from it. Where the plaintiff had incurred an obligation to a physician, his statement that perhaps an ordinary fee of from $200 to $300 might cover it was too loose for an award to the plaintiff.

Error of Court in Refusing to Wait for Physicians

(City of Harlan v. Howard (Ky.), 277 S. W. R. 847)

The Court of Appeals of Kentucky says that, in this action against the city to recover damages for personal injuries received by the plaintiff when a bridge fell which was maintained by the city as a part of one of its streets or public passways, the plaintiff, while testifying to a condition of pain and suffering in which she had been almost continuously since she was injured by the falling of the bridge, disclosed that for some eight or nine years before that occurrence she had been a sufferer from some nervous ailment or derangement. On a motion made by the defendant, and consented to by the attorneys for the plaintiff, the court appointed two physicians to make an examination of the plaintiff, during the noon recess of the court, to ascertain the nature and extent of her injuries, with direction to report and be in a position to testify on the convening of the court in the afternoon. The court was then adjourned to a fixed time, and when that time arrived and the court reconvened, the two physicians had not returned to the courtroom, and, over the defendant's objection, the court declined to wait further or to permit the physicians to be called, but immediately submitted the case to the jury. The court of appeals appreciates the congested condition of this trial court's docket, and commends all reasonable efforts to expedite the trial of cases. However, in view of the unsatisfactory condition of the evidence as to the extent of the plaintiff's injuries received as a result of the falling of the bridge, this court is constrained to the view that the trial court's summary submission of this case to the jury without giving the parties a reasonable opportunity to call the two physicians and introduce their testimony on that question was erroneous—an abuse of discretion for which the judgment obtained by the plaintiff must be reversed, and a new trial granted. Such pain and suffering as from her testimony she appeared to have endured, and was by her testimony attributed to the injuries received by her, as described by her, might have been as well attributed to the diseased condition of her nervous system of many years' standing.

Opinions of Physicians as to Insurance Companies

(New York Life Ins. Co. v. Long (Ky.), 277 S. W. R. 978)

The Court of Appeals of Kentucky says that in this action on a life insurance policy the defendant company denied liability on the ground that the representations contained in certain answers in the application for the insurance were material and false, and the question was presented as to whether or not the company, acting reasonably and naturally in accordance with the practice usual among life insurance companies, would have accepted the application and issued the policy sued on, if in answer to the questions the insured had stated the truth in accordance with the facts proved. It was insisted that under a previous opinion of this court none save those engaged for insurance companies in the actual business of passing on the desirability or nondesirability of insurance risks, and accepting or rejecting applications for insurance, were qualified to testify on the question involved here. But this court cannot agree with that contention. Three regularly licensed and practicing physicians of many years' standing testified for the plaintiff. It appeared that each of them had been a medical examiner for a number of life insurance companies, and in the course of his professional

services along that line had had occasion to observe, and had observed, the custom and practice prevailing among life insurance companies generally in considering and taking action on applications for life insurance. It could not be said that they had not qualified themselves as experts in passing on the desirability of risks by those engaged in the life insurance business. Their professional work for life insurance companies in making medical examinations of applicants for insurance, extending over many years' time, peculiarly qualified them to know what risks were considered desirable and what undesirable by life insurance companies generally, and what the general custom of those engaged in the insurance business was with reference to the acceptance or rejection of applications under given states of cases. It cannot be held that they failed to qualify themselves as competent to testify.

Negligent Care of Sick Employee of Railway Company

(Baker et al. v. Adkins et al. (Texas), 278 S. W. R. 272)

The Court of Civil Appeals of Texas says that this action was brought against the receiver of the International & Great Northern Railway Company and against the company itself by Mrs. Adkins, on her own account and as administratrix in behalf of minor children, to recover damages for the death of Mr. Adkins, who, while an employee of the receiver, as a member of a bridge gang, was taken ill with smallpox. This court repudiates the barbarous doctrine that the master, if a railroad corporation, can ignore the cry of distress of the injured or sick employee, his illness or injury coming on him suddenly while serving the master. Certainly if the corporation assumes the duty of caring for the employee it must do so in a reasonably careful and competent manner, and if negligent cannot hide itself behind the cruel plea of such care being outside its chartered duties. This court commits itself to the theory that, even though a strict interpretation of the law as to the liability of the corporation master to the servant would permit it to turn aside in case of his sudden injury or sickness, while actively in its service, and refuse aid or assistance, still, if it should assume such care and assistance, to the exclusion of the family or other agencies, it will be held to the exercise of reasonable care in giving such aid, and if negligent it must respond in damages arising from such negligence. In this case the defendants assumed the responsibility of reasonable care in treating Mr. Adkins, and they must respond in damages for the failure to exercise such care. The decisions of a number of states sustain this proposition, and the death statute sustains a judgment for damages arising under the facts of this case.

The evidence in this case showed that not only did the receiver fail to notify the family or any one else of the condition of his employee, but assumed absolute and exclusive control of him, suffered him to lie in filth, exposed to the vilest insects and vermin, unwashed, with dirty, unclean bedclothing and untrained inefficient nursing, and, in addition, on several occasions, ran cars or locomotives against the car in which he was helplessly lying, and added to his discomfort and nervousness, and hastened his dissolution. No such negligence has ever been excused, or condoned through any technicalities, by any decision brought to the notice of this court. The grossest negligence was shown in the case of the sick man, and the receiver was responsible for the neglect and inexcusable carelessness and disregard for the comfort of the helpless patient.

The acts of negligence shown by the testimony and found by the jury were proximate causes of the death of Mr. Adkins. It was not necessary that these acts of negligence should be the sole cause of his death, but if they, together with smallpox, brought about the death, the defendants were liable. It did not matter who had provided the physician. The defendants had been guilty of negligence that contributed to the death of Mr. Adkins, and that was sufficient to fix liability. The question of who furnished the medical treatment was suggested by the defendants in conjunction with other suggested issues, and they were properly refused. The circumstances by which Mr. Adkins was surrounded were created by the receiver. The patient was in the hands of the receiver; he had assumed the care of the patient, and it was his duty to see that the sick man received proper medical treatment, and he could not shift his liability by the claim that some one else employed the physician. It was his duty to see that the physician was skilled and efficient.

This court does not think that a verdict in favor of the plaintiff, which amounted in the aggregate to $22,000, could be held as a matter of law to be excessive as to those entitled to recover.

Society Proceedings

COMING MEETINGS

Associated Anesthetists of the United States and Canada, Nottingham, England, July 20-23. Dr. F. H. McMechan, Avon Lake, Ohio, Sec'y.
Montana, Medical Association of, Billings, July 16-17. Dr. E. G. Balsam, 222 Hart-Albin Building, Billings, Secretary.
Wyoming State Medical Society, Lander, July 12-13. Dr. Earl Whedon, Sheridan, Secretary.

ASSOCIATION OF AMERICAN PHYSICIANS

Forty-First Annual Meeting, held at Atlantic City, N. J., May 4-5, 1926

(Concluded from page 2000)

Tertiary Syphilis of the Liver

DR. THOMAS MCCRAE, Philadelphia: One hundred cases are presented. The patients are mostly under 20, and all are congenital cases. The symptoms are fever, ascites and liver tumor, with marked enlargement of the left lobe. There is a large, domelike projection in the epigastrium. The prognosis is very bad. Two thirds of the cases are in males. The incidence is relatively high in colored persons, especially in colored women. The three outstanding complaints are loss of weight, swelling of the abdomen and pain in the abdomen. The histories give a description of periods of good health alternating with ill health. Ascites which clears up should always suggest syphilis of the liver. Examination is often difficult on account of the abdominal tenderness. Fever is present in 81 per cent, jaundice in 40 per cent and ascites in 42 per cent, and is usually very marked. The ascitic fluid gives a positive Wassermann reaction in 50 per cent; it is positive sometimes when the blood serum is negative. Splenic enlargement is present in 58 per cent of cases and is often very marked. Liver tumor is present in 89 per cent of cases. The left lobe of the liver is enlarged in more than 50 per cent. The prognosis is bad. Patients often died from other conditions, such as circulatory failure. There is a tendency to progress to cirrhosis with contraction. As to therapy, if the cases are discovered early and the proper treatment instituted, results are brilliant. The treatment is by mercury and iodides. No arsenical preparation should be given to patients with syphilis of the liver. There is great danger of toxemia with coma. With proper treatment there is no recurrence of symptoms.

DISCUSSION

DR. HARLOW BROOKS, New York: The relief of pain following administration of iodides and mercury is very remarkable in these cases. We have had some experience of the bad effects of the administration of arsenic. There were three fatalities, but it is hard to teach the profession at large not to give arsenic in these cases; even good syphilologists are too ready to give arsenic.

DR. W. S. THAYER, Baltimore: I have seen two cases of severe diphtheritic enteritis and colitis following the use of intravenous therapy which is so constantly done today. Without any proof of its usefulness, the custom continues, and the poisoning by its use is very frequent. There are many dangerous methods of treatment in popular use.

DR. W. G. MCCALLUM, Baltimore: I have seen a case in which the liver cells were practically destroyed following the use of arsphenamine. The extent of destruction attributable to arsphenamine treatment is devastating. We have analyzed cases of diphtheritic colitis following intravenous treatment by mercurial compounds and can emphasize what Dr. McCrae has said. The percentage of poisoning is enormously increased.

Dr. Charles F. Hoover, Cleveland: I agree with the attitude toward arsphenamine. I always treat a patient with syphilis with mercury. If the patient cannot stand mercury, I consent to employ arsphenamine.

Dr. Joseph Pratt, Boston: We have had fourteen cases of acute yellow atrophy, and two were due to therapeutic doses of arsphenamine.

Combined Diuretic Action of Certain Acid Salts and Organic Mercury Compounds

Dr. Norman M. Keith, Rochester, Minn.: We found that when using calcium chloride for edema it was difficult for the patients to take the salts. Therefore we tried ammonium chloride instead of calcium chloride. Certain cases are resistant to calcium chloride, and certain cases are resistant to ammonium chloride. Certain cases also are resistant to mercury salts. The condition of the stomach and the equilibrium of the ions in the body with regard to the drug have to be correct, or the drug cannot act. Study of the action of these substances points to the fact that they act regardless of differing pathologic conditions. They will act in the same individual at one time and not at another. When the chlorides are low in the blood, mercury compounds fail to produce diuresis. When there is diuresis, there is excretion of total and inorganic fixed bases, mostly sodium. We believe that the diuresis produced is constitutional rather than due to one single organ.

Use of Mixed Stock Vaccines in Pneumonia

Dr. Alexander Lambert, New York: Two hundred and twenty-one cases of pneumonia were treated with mixed stock vaccines during the same time that other patients were treated with pneumonia antibodies, and with pneumonia serum. There were also for comparison 286 control cases of pneumonia in which no specific treatment was given, and the patients were sick simultaneously in the wards. The vaccine used was a mixed stock vaccine sterilized without heat, containing 1 million bacteria to the cubic centimeter. It contains 200 million of Pfeiffer's influenza bacillus, 100 million pneumococcus, 100 million streptococcus, 200 million *Micrococcus catarrhalis*, and 200 million each of *Staphylococcus aureus* and *Staphylococcus albus*. There are 160 different strains of these different bacteria in this vaccine, including forty different strains of the four different types of pneumococcus. The dosage given has been from 1 to 2 cc., usually 1.5 cc., intramuscularly, every six hours as long as the temperature was above 99 F., and when the temperature fell to 99 F., the dose was cut every twelve hours for one or two doses, and then to once in twenty-four hours for one or two days, and the vaccine treatment ceased. The effect of vaccines in pneumonia differs greatly, according to whether they are given early or late in the disease. Transportation also has detrimental effect on hospital patients. Therefore treatment of these cases is put to the severest kind of test. Besides the specific vaccine treatment, these patients have been given digitalis or whatever cardiac stimulation was necessary, or needful medication for troublesome bronchitis. Mortality in the vaccine treated cases was 21.2 per cent, compared to 40.5 per cent in the controls. Six of the vaccine treated patients and sixteen of the control cases came in moribund. Subtracting these deaths, it leaves 19 per cent in favor of the vaccine cases, against 37 per cent in the controls. The mortality rate is lower in the vaccine treated patients, the earlier it is administered. If given within forty-eight hours, the mortality rate is 5.8 per cent; if in the first seventy-two hours, 9.8; after the first seventy-two hours, the mortality in the vaccine treated cases and the control cases was nearly the same. The great advantage of vaccines lies in early treatment and has no relation to type of pneumococcus. In the controls the death rate was higher in types 2 and 3. Clinically, the effect of the vaccines has been distinctly that of diminishing the severity of the disease, rather than shortening its course, or other effect. No febrile reaction followed the use of these vaccines. After the vaccine dosage, there was diminution in temperature, in pulse frequency and rapidity of respirations, compared with the controls. The advantage of vaccines, compared with other specific treatments of pneumonia, has been that there is no protein reaction following their use, no rise in temperature and dangers resulting therefrom. There is no anaphylactic reaction and no limitation to any special type of pneumococcus. They are easily obtainable and are readily available by the profession. They must, however, be used early in the disease, in sufficient amounts, and sufficiently often in each twenty-four hours to be effective.

Contagion of Tuberculosis

Drs. Eugene L. Opie and Maurice F. McPhedran, Baltimore: We have endeavored to distinguish latent tuberculosis from manifest tuberculosis. The difference between the two is very uncertain. The study has been made on families in which tuberculosis occurred, compared with those in which no tuberculosis occurred. One hundred families were studied in 1924, and 250 in 1925. Roentgen-ray studies were used, and the quantitative intradermal tuberculin test was made. We have recognized lesions having the characteristic tuberculosis of childhood, and other types resembling active disease. In ten families there was tuberculosis either latent or evident in both husband and wife. Forty-seven per cent of cases occurred in the children, showing high contact incidence. The tuberculin reaction in the contact and noncontact families was 100 per cent at 20 years. Up to 5 years of age, it was 80 per cent in contact family children and 20 per cent in noncontact families. There was a high incidence of tracheal and bronchial lymph node infection.

Function of the Tissues in Immunity

Dr. Frederick P. Gay, San Francisco: Back of all immunity lie the cells. We cannot prove that antitoxin is formed in the cells of the central nervous system. The work on opsonins suggested that antibodies do not act directly, but by affecting bacteria; thus there is a tertium quid. Why, for instance, does a typhoid recovered case remain immune? There must be some change in the cells of the body. What are the phagocytic properties of other cells of the body? We have studied local immunity and we feel that the skin or pleura may be immune and the rest of the body remain unprotected. The local condition, however, may be related to conditions not strictly local in their nature. I do not think protection is due entirely to increase in the number of cells. When the right pleural cavity is infected, there is immunity produced also in the left pleural cavity. There is a metaplasia of cells along the muscle bundles to the other side of the body, which gives protection when these cells are present.

Studies on the Herpes Encephalitis Questions

Dr. Hans Zinsser, Boston: It was supposed at one time that the virus of herpes and of encephalitis were identical. I do not believe that these viruses are identical.

Bacteriology of Lobar Pneumonia

Drs. Russell L. Cecil, Horace S. Baldwin and Nils P. Larsen, New York: Two thousand cases of pneumonia have been typed by us. Bronchopneumonias were not included in this series. Ninety-five per cent were pneumococcus infections, of all four types: type I, 33 per cent; type II, 19 per cent; type III, 13 per cent; type IV, 33 per cent. The incidence of mixed infection increased with the type; thus, type I showed 18.4 per cent mixed infection; type II, 23 per cent; type III, 23 per cent; type IV, 31 per cent. In regard to age, types II and IV do not vary much as to age of patients. Type I shows high incidence in the early decades; type III has low incidence in early life, and high incidence in elderly persons. In regard to sex, types I and II are common in males; types III and IV in women. Men under 50 show many cases of types I and II; women over 50, of types III and IV. Type IV occurs oftener in pneumonia secondary to bronchitis and influenza. Type III has a high incidence in persons with systemic disease, and among the insane. In fatal cases blood cultures ran 62 per cent positive. With sterile blood cultures, there were 18 per cent fatal cases. Complications are twice as common in type I as in other types. If empyema occurred before the seventh day, 90 per cent of the patients died.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in America for a period of three days. No foreign journals are available prior to 1921, nor domestic prior to 1923. Periodicals published by the American Medical Association are not available for lending, but may be supplied on order. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

31: 603-761 (May) 1926

*Prevention of Rickets: Influence of Routine Administration of Cod Liver Oil. M. G. Wilson, New York.—p. 603.
*Etiology and Healing Process of Duodenal Ulcer in Melena Neonatorum. R. L. J. Kennedy, Rochester, Minn.—p. 631.
*Osteomalacia in Children: Mineral Metabolism. H. L. Dwyer and O. S. Eckelberry, Kansas City, Mo.—p. 639.
*Chylothorax in New-Born Infant: Case. C. A. Stewart and H. P. Linner, Minneapolis.—p. 654.
*Recurrent Vomiting. H. Josepha, Baltimore.—p. 657.
*Influence of Acidified Milk on Duodenal Function in Infants. L. Arnold, Chicago.—p. 668.
*Goiter in Children in New York City. F. Cohen, New York.—p. 676.
Kidney: Filter for Bacteria. VI. Effect of Ureteral Obstruction on Excretion of Bacteria. H. F. Helmholz and R. S. Field, Rochester, Minn.—p. 693.
Flatfoot in Infants and Children. P. Lewin, Chicago.—p. 704.

Influence of Routine Administration of Cod Liver Oil in Prevention of Rickets.—A study made by Wilson of infants, aged from 1 to 3 months, born in the spring and summer of 1924, receiving graduated doses of from one-half to one and one-half teaspoonfuls of a biologically tested cod liver oil, revealed the development of clinical rickets in 91 per cent of the subjects. A more intensive study of forty-seven infants, aged from 2 weeks, born in the winter of 1925, receiving daily doses of one, two and three teaspoonfuls of biologically tested cod liver oil, showed the development of clinical rickets in 68 per cent of the cases, as compared with 76 per cent of the control series of thirty cases. Ninety-seven per cent of infants born in the summer, and 91 per cent of infants born in the winter, who received cod liver oil, showed roentgenographic evidence of rickets. Ninety-seven per cent of the infants born in the summer, and 98 per cent of infants born in the winter who did not receive cod liver oil, showed roentgenographic evidence of rickets. Rickets was observed earlier by roentgen ray than by clinical examination, being observed in 4 per cent at 1 month and in 23 per cent at 2 months of age, compared with a total of 4 per cent at 2 months by clinical examination alone. By the fourth month, rickets was present in the majority of infants of both groups. The early age incidence of the development of rickets observed indicates the necessity for measures of prevention or control to be instituted in the first month, particularly for babies in winter. The correlation of the clinical and roentgenographic evidence of rickets observed at the various age periods in this investigation indicated that active rickets is encountered most frequently in the first six months of life, and healing rickets after six months. There did not seem to be any relation between the degree of rickets observed and the amount of cod liver oil received. Infants receiving cod liver oil showed rickets that healed earlier than that of the control series. The nature of the relation of cod liver oil therapy to the development of rickets, as observed in these studies, would seem to be one of control rather than of prevention.

Duodenal Ulcer in Melena Neonatorum.—Kennedy states that careful search will reveal peptic ulcer in a larger number of cases of melena neonatorum. In three cases studied, streptococci or diplococci were demonstrated in the tissues of the ulcers. It is believed that these must be the chief etiologic agents. Healing of duodenal ulcers begins very early and proceeds rapidly, so that, under proper conditions, the injury may be entirely repaired in a few days, an additional reason why they are so difficult to find. The rapidity of the healing of duodenal ulcer probably accounts for many of the recoveries from melena neonatorum.

Mineral Metabolism in Osteomalacia.—Two cases of osteomalacia occurring in children are reported by Dwyer and Eckelberry. Studies on the mineral metabolism indicate that there is a lowered retention of calcium, magnesium and phosphorus. In one patient, the calcium loss reached a negative balance.

Chylothorax in New-Born Infant.—A fatal case of chylothorax in an infant, aged 4 days, due apparently to a rupture of the thoracic duct, is reported by Stewart and Linner. In the amounts given, the oral administration of sudan III failed to stain the fat droplets in the chylous fluid. The golden yellow color of the chylous fluid present the first few days apparently was due to lactochrome (carotin, largely) derived from the colostrum the baby obtained at the breast. Following the injection of sterile congo red into the peritoneal cavity, the dye appeared in the chylous fluid in the pleural sac.

Hypoglycemia and Recurrent Vomiting.—Some, and in all probability a large, proportion of the attacks of recurrent vomiting, Josephs says, are characterized by hypoglycemia, which develops rapidly and in some instances may reach a considerable degree. The rapidity with which hypoglycemia develops at the beginning of a fast is made the basis of a test for recurrent vomiting, which can readily be applied between attacks. The mechanism of the hypoglycemia is discussed, as well as the part played by anesthesia, fever and other conditions, in initiating an attack of the disease.

Influence of Acidified Milk on Duodenal Function.—The use of buttermilk, lactic acid milk, protein milk and such mixtures, Arnold states, influences duodenal function more than it does gastric function. The amount of actual hydrolysis of protein due to peptic activity in the infant's stomach is unknown. The evidence at present available substantiates the conception of gastric function in the baby as being an important chemical mechanism, as it maintains a constant duodenal and jejunal reaction that allows the physiologic process of control of the bacterial flora of this region of the intestinal tract.

Goiter in New York Children.—The more important and suggestive points discussed by Cohen and disclosed by a survey of 11,084 school girls and 783 school boys in New York City are as follows: The incidence of simple goiter in school children and in the older group of women, and the investigation into the conditions of iodine intake which determine endemic centers of goiter, do not justify a conclusion that New York City is an endemic center of goiter. The mild sporadic cases of simple goiter which occur among school children seem to be dependent on a relative insufficiency of iodine, due mainly to a physiologic cause; namely, puberty. Thyroid enlargements occur in New York City about three times more frequently in girls than in boys. Simple goiter among children in New York City reaches its peak at puberty, between the ages of 13 and 15, in both girls and boys. The percentage of incidence of normal glands seems to vary inversely with the degree of activity of the menstrual cycle. The mild cases of simple adolescent goiter observed among children in New York City seem to show, in the case of girls, a distinct tendency to spontaneous regression after puberty; in that of boys, a complete regression.

American Journal of Medical Sciences, Philadelphia

171: 469-624 (April) 1926

Advancement of Epidemiology Through Experiment. S. Flexner, New York.—p. 469.
*Mode of Death in Various Types of Heart Disease. F. A. Willius, Rochester, Minn.—p. 480.
*Intermittent Auricular Ventricular Block. H. W. Dana and W. Dameshek, Boston.—p. 485.
*Cerebral Manifestations of Paroxysmal Tachycardia. A. R. Barnes, Rochester, Minn.—p. 489.
*Cause of Essential Hypotension. A. E. Fossier, New Orleans.—p. 496.
*Splanchnic Dyspepsia: Gastro-Intestinal Syndrome of Circulatory Origin. W. J. Mallory, Washington, D. C.—p. 504.
*Acute Perforation of Gastric and Duodenal Ulcer: Sixty-Two Cases. K. A. Meyer and W. A. Brams, Chicago.—p. 510.
*Sprue in Temperate Zone. G. L. Lambright, Cleveland.—p. 515.
*Interstitial Gland Cells in Human Ovary. B. D. Lewin, Ward's Island, N. Y.—p. 518.
*Pain in Cancer of Breast: Clinical Significance. S. Ginsburg, New York.—p. 520.
Cancer. III. W. Meyer, New York.—p. 535.

Cancer. IV. W. Meyer, New York.—p. 543.
*Spinal Cord Tumor Occurring Without Pain or Sensory Change. R. L. Glass, Ann Arbor, Mich.—p. 552.
*Typhoid Abscess of Breast. P. O. Snoke and J. L. Goforth, Philadelphia.—p. 555.
*Calcium Content of Blood in Gout and Arthritis. P. Horowitz, New York.—p. 560.
Hypertrophy, Congenital, of Left Shoulder Girdle, Arm and Hand, with Nevus and Varicose Veins. E. G. Wakefield, Washington, D. C.—p. 569.
*Blood-Serum Calcium in Sprue and Other Pathologic States in Tropics. B. K. Ashford and L. G. Hernández, San Juan, P. R.—p. 575.

Mode of Death in Heart Disease.—In a review made by Willius of 330 cases in which death occurred as the direct result of cardiac disease, clinically or pathologically determined, the types were as follows: (1) Arteriosclerotic cardiac disease, 25 per cent; (2) myocardial infarction, 11 per cent; (3) hypertensive cardiac disease, 12 per cent; (4) cardiac hypertrophy associated with obesity, 0.6 per cent; (5) acute myocarditis, 0.3 per cent; (6) cardiac failure from mechanical causes, 0.6 per cent; (7) chronic endocardial valvular disease, 28 per cent; (8) bacterial endocarditis, 9 per cent; (9) pericardial disease, 5 per cent; (10) cardiovascular syphilis, 8 per cent; (11) congenital cardiac disease, 1 per cent. Sudden death occurred in 125 cases, while death from gradual cardiac failure occurred in 205 cases. Embolic phenomena occurred in fifty-eight cases. Necropsy was performed in 85 per cent of the cases reported.

Intermittent Auricular Ventricular Block.—A case of transient 2 to 1 auricular ventricular block, apparently due to right bundle branch defect, is reported by Dana and Dameshek. The transition from a period of 2 to 1 block to a period of normal rhythm, as recorded by the polygraph, was perfectly smooth and unbroken, giving no evidence of a change in mechanism, nor any definite explanation for the presence of the abnormal rhythm. It is believed that alternation between normal conduction and auricular ventricular block is possible only when the P-R interval (*a-c* interval) is practically within normal limits; that is, when the delay in conduction between auricle and ventricle is not in itself sufficient to account for the blocking of the auricular impulse.

Cerebral Manifestations of Paroxysmal Tachycardia.—Cerebral manifestations, consisting of vertigo, hemianopsia, temporary blindness, fainting, falling, with or without loss of consciousness, and epileptiform seizures, occurred in fifteen of 104 cases of paroxysmal tachycardia studied by Barnes. The presence of these symptoms requires that paroxysmal tachycardia be considered. Cerebral manifestations in attacks of paroxysmal tachycardia occurred most frequently in cases in which the origin of the impulse and its propagation in the heart varied the greatest from normal. The presence of these manifestations does not affect the prognosis in attacks of paroxysmal tachycardia. The prognosis depends on the type and degree of the underlying cardiac injury.

Cause of Essential Hypotension.—All hypotheses heretofore advanced as to the etiology of essential hypotension, Fossier says, have been either unproved, refuted or impractical. Its characteristic symptomatology is commonly found in the asthenic or splanchnoptotic patient, and only very rarely, if ever, in hypersthenia. The low blood pressure is raised by the treatment of splanchnoptosis; i. e., abdominal support, the strengthening of the abdominal muscles and the increase of the intra-abdominal fat. The use of organotherapy has proved unsuccessful in correcting the hypotension. It is encountered in patients having an elongation of the ascending aorta, a narrowing of its hemicircle, and a heart poorly supported by the diaphragm (drop heart). It answers the hydraulic principles, the longer the pipe and the smaller the radius of the bend, the smaller will be the final velocity energy; or in men, the longer the ascending aorta, the narrower the diameter of the aortic arch, the heart pressure being equal, the lower the systolic blood pressure.

Splanchnic Dyspepsia.—Mallory describes a group of symptoms, often referred to as "indigestion," due, not to disturbance of the digestive function, but to disorder of the circulation. The relief experienced after a laxative or enema is attributed to an evacuation of the bowel, but this, Mallory says, is erroneous, because relief occurs before the evacuation, and the symptoms return within a few hours, before stasis could recur. The real character of the syndrome is indicated by vasomotor disturbance, imbalance of the sympathetic nervous system and a low Crampton's index. Remedies should be directed to restoring the tone of the circulatory mechanism, and not to the digestive organs.

Acute Perforation of Peptic Ulcer.—In a series of sixty-two consecutive cases of acute perforation of gastric and duodenal ulcer, proved at operation, every patient was a male. Meyer and Brams suggest that this observation may be of value in the diagnosis of surgical emergencies of the abdomen. Sixty per cent of the patients were under 40, and 32 per cent were 30 years old or younger. Overdistention of the stomach by food or unusual exertion had comparatively little to do with actual rupture. Perforation occurred during sleep in five patients. The clinical picture in the early stages was clear cut, so that a correct diagnosis was made in 85 per cent of the cases before operation. The clinical features are obscured later in the course by the resulting peritonitis and meteorism. The location of the maximum pain and tenderness was then often in the right lower quadrant of the abdomen instead of in the epigastrium. The presence of free air in the peritoneal cavity on fluoroscopic examination proved of great help in the diagnosis both in the early and later stages of perforation. Vomiting always occurred after the onset of the pain, and was present in all but six cases, but in no case was hematemesis present. This series showed no marked difference in the mortality rate of gastric and duodenal ulcer. The total death rate was about 29 per cent and rose rapidly with delay before operation.

Sprue in Temperate Zone.—Lambright reports a case of sprue developed in this climate in a patient at the age of 16, producing the typical symptoms and blood changes characteristic of sprue, and even suggested pernicious anemia. *Monilia psilosis* was found in the stool. Motility disturbances in the small intestines were present as an underlying predisposing factor in the infection. Evidence of blood destruction was found in the presence of urobilin and bile in the urine.

Interstitial Gland Cells in Ovary.—Among forty-three pairs of ovaries from psychotic cases examined by Lewin, two ovaries, each from a different case, showed in the hilum a small island of cells identical in appearance with the interstitial gland cells of the testis. The clinical diagnosis in both cases was "senile psychosis." No functional features were to be correlated with this finding. If the cells exerted a "male" influence, the fewness of their number, or the presence of general senility, prevented this influence from manifesting itself. The possibility of overlooking the presence of such an island, when the ovary is removed in the usual routine necropsy manner, is pointed out.

Significance of Pain in Breast Cancer.—Ginsburg asserts that extramammary pain in breast cancer most frequently spells cancerous skeletal metastases. Whenever a patient with breast cancer, preoperatively or postoperatively, with or without local recurrence, with or without demonstrable visceral metastases, complains of pain for which no adequate or obvious benign cause can be found, one must think of skeletal metastases. Frequent and repeated roentgenologic examination of the skeleton for bone metastases should be carried out. As a corollary, prophylactic postoperative irradiation in breast carcinoma ought to include not only the breast region, but also a judicious raying of the skeleton, with special reference to the most frequent sites of bone invasion.

Spinal Cord Tumor Without Pain.—The tumor in Glass' case was an extradural endothelioma psammomatosum, lying external to the dura, and extending from between the fifth and sixth cervical vertebrae to between the first and second thoracic vertebrae, and lay both posterior and to the left of the cord. That part of the tumor which had grown about the left margin of the cord completely surrounded three nerve roots at their points of issuance from the dura. Neither spinal roots nor cord were particularly flattened.

Typhoid Abscess of Breast.—Snoke and Goforth report a case of proved typhoid abscess of the breast occurring one year after lactation. It was preceded by three postlactation

masses, perhaps periductal adenofibromas, which may have afforded foci for the localization of the typhoid bacilli. Enlarged masses in the axillary fold proved to be periductal adenofibromas, presumably of misplaced mammary tissue. The differential diagnosis from tuberculosis or neoplasm could not be made before the breast was amputated.

Blood Calcium in Gout and Arthritis.—In five out of fourteen cases of arthritis deformans, a high blood-calcium concentration was found by Horowitz. In the nine remaining cases, the calcium was within normal limits. Cases of acute gout showed a high calcium concentration. In chronic gout, the blood calcium was found to be within normal limits. In a case of arthritis complicated with an otosclerosis and in others complicated with chronic nephritis, a hypocalcemia was present. In agreement with other investigators, the author found that the blood calcium in diabetes was normal or slightly above normal.

Blood Calcium in Sprue.—Low total serum calcium values, according to Ashford and Hernández, are not pathognomonic of sprue, or of any other special disease they have so far seen. They are probably the indirect results of nutritional unbalance. The marasmus of sprue is notorious. No disease furnishes a higher percentage of "living skeletons," but there is still to be explained the fact that in more than one half of the severe and cachectic cases there is a normal total serum calcium. There seems to be, as a rule, a real and positive rise in serum calcium after the intramuscular injection of parathyroid extract. This rise must be only temporary, however, as may be faintly shadowed by the disparity between rises after a month and those after a day or so following injection. On the other hand, some old cases of sprue have attained a normal calcium with diet alone, even with *Monilia* vaccines alone, but always only in conjunction with improved nutrition, by improved digestion and restoration of digestive glandular efficiency. Of the 101 cases of nutritional unbalance reported by the authors, cultures were made from the feces in thirty-eight cases and two were positive for *Monilia psilosis*, while of the fifty-five cases of sprue, thirty-five were positive for *Monilia psilosis*. Thirteen are as yet unclassified but positive for *Monilia* of doubtful species, and six are negative for all fungi. The feces of 178 supposedly healthy boys were cultured and in seven *Monilia psilosis* was found.

American Journal of Obstetrics and Gynecology, St. Louis

11: 429-582 (April) 1926

Radium Treatment of Carcinoma Uteri. G. G. Ward and L. K. P. Farrar, New York.—p. 439.
Precancerous Lesions of Uterus. P. Findley, Omaha.—p. 450.
Cervicitis, Erosion and Laceration of Cervix Uteri from Standpoint of Pathology. G. L. Moench, New York.—p. 453.
Endometrial Adenoma (Implantation) in Vermiform Appendix. M. G. Seelig, St. Louis.—p. 461.
Extrameatal Prolapse of Urethra: Case with Acute Onset. W. T. Dannreuther, New York.—p. 468.
Weight Estimates During Pregnancy and Puerperium. W. Kerwin, St. Louis.—p. 473.
Injuries of Infant During Delivery. P. B. Bland, Philadelphia.—p. 477.
Vulvovaginitis in Infants and Young Children. P. F. Williams, Philadelphia.—p. 487.
Duodenal Ulcer from Partial Obstruction at Duodenojejunal Junction. E. P. Sloan, Bloomington, Ill.—p. 492.
*Possible Cause for Pemphigus Neonatorum. R. E. Krigbaum, Columbus, Ohio.—p. 494.
Method of Obtaining Vaginal Secretion for Bacteriologic Examination Without Possibility of Vulval Contamination. J. W. Harris and J. H. Brown, Baltimore.—p. 497.
Spontaneous Rupture of Uterus in Labor Following Sturmdorf Trachelo-plasty. N. J. Estman, Peking, China.—p. 500.
*Intraperitoneal Hemorrhage Complicating Abortion. W. L. Downing, Le Mars, Iowa.—p. 503.
*Supernumerary Breast Near Labium. J. W. Bell, Minneapolis.—p. 507.
Case of Gangrene of Cecum in New-Born Infant. L. A. Wing, New York.—p. 510.
Case of True Ovarian Pregnancy. J. R. Manley, Duluth, Minn.—p. 512.

Liquor Cresolis Compositus Causes Pemphigus Neonatorum.—Krigbaum associates the use of liquor cresolis compositus with the occurrence of pemphigus neonatorum. He thinks that there is a strong possibility that the irritating alkaline solution is at times the cause of pemphigus. Therefore, no liquor cresolis compositus which has not been titrated to determine its free alkalinity should be used in delivery rooms or nurseries in such a way that it might come in contact with babies' skins; second, that one cannot eradicate an epidemic of pemphigus by changing the solutions in the delivery room or nursery without resorting to the usual methods of isolation and prevention, because, when an epidemic is once started, the mild staphylococcus increases in virulence as a result of its rapid transmission from one host to another, to such an extent that it becomes capable of infecting a normal nonirritated baby; third, as a precaution against the common form of impetigo, young children should be prohibited from visiting new-born babies during their confinement to the hospital.

Intraperitoneal Hemorrhage Complicating Abortion.—In the case cited by Downing, an intra-uterine implantation was present, the pregnancy having reached approximately the eighth week. A spontaneous abortion then took place, complicated by a localized acute inflammation in the left tube. Hemorrhage into the peritoneal cavity also occurred.

Supernumerary Breast Near Labium.—Bell's patient, aged 59, multipara, had a mass about the size of an egg attached just in front of the left labium majus by a pedicle 3 cm. in diameter. The mass was of variable consistency, quite elastic and was not attached to the skin, which slid over it easily. It was removed. The microscopic appearance of the specimen was that of a resting breast with cystic disease present.

American Review of Tuberculosis, Baltimore

13: 293-391 (April) 1926

*Effects of Atmospheres Rich in Oxygen on Normal Rabbits and Rabbits with Pulmonary Tuberculosis. A. L. Barach, New York.—p. 293.
*Gastric Function in Pulmonary Tuberculosis. D. Perla, New York.—p. 317.
*Importance of Timely Radical Local Rest (Thoracoplasty) in Pulmonary Tuberculosis. J. L. Dubrow, Denver.—p. 327.
*Healed Generalized Miliary Tuberculosis. P. H. Pierson, San Francisco.—p. 342.
*Acute Tuberculous Lymphadenitis Complicating Pulmonary Tuberculosis. A. S. Lathrop, Wallingford, Conn.—p. 350.
*Cutaneous (Moro) Tuberculin Test in Artificial Pneumothorax Patients. H. F. Gammons, Booneville, Ark.—p. 357.
Reticulum of Lung: Rôle in Healing of Miliary Tubercles. W. S. Miller, Madison, Wis.—p. 360.
*Influence of Winter Climate on Pulmonary Tuberculosis in United States. J. R. Miner, Baltimore.—p. 366.
*Inherited Immunity in Tuberculosis. H. G. Carter, Burkeville, Va.—p. 373.
*Resistance to Tuberculous Infection of Guinea-Pigs Rendered Skin Sensitive with Dead Tubercle Bacilli. L. Dienes and E. W. Schoenheit, Asheville, N. C.—p. 379.

Effects of Oxygen on Pulmonary Tuberculosis.—Experiments were carried out by Barach, which indicated that the inhalation of atmospheres containing 60 per cent oxygen exercises no specific retarding influence on the development of experimental pulmonary tuberculosis. The use of oxygen in pulmonary tuberculosis has no specific curative value. When dyspnea or cyanosis is present, the inhalation of oxygen is of benefit, as it is in other acute respiratory disturbances; namely, by relieving dyspnea, decreasing pulmonary ventilation and by averting the harmful effects of anoxemia.

Gastric Function in Pulmonary Tuberculosis.—The gastric contents of 198 tuberculosis patients were analyzed by Perla, with these results: Pulmonary tuberculosis is generally accompanied by a diminution of acidity of the gastric juice. The decrease in hydrochloric acid bears no definite relation to the anatomic extent of the disease, although anacidity occurs more frequently in active bilateral far advanced lesions. Although the presence of fever is not necessarily accompanied by a diminished hydrochloric acid secretion, marked hypochlorhydria is more frequent in patients with constitutional symptoms than in those free from them. Heartburn and sour eructations are far more frequently associated with hypochlorhydria than with hyperchlorhydria. Distention, anorexia, belching and constipation are, however, the more common symptoms associated with hypo-acidity. All cases of emetic cough show marked hypo-acidity. The absence of free hydrochloric acid may occur in cases without any gastro-intestinal complaints. A normal J-shaped orthotonic type of stomach is found in the majority of cases of pulmonary tuberculosis uncomplicated by intestinal lesions. In cases associated with gastroptosis, impairment of gastric

function is not necessarily present. The position of the stomach does not contribute to the hypochlorhydria so often found in cases of pulmonary tuberculosis. In pulmonary tuberculosis associated with hypo-acidity, large doses of dilute hydrochloric acid afford, in the presence of disturbing digestive complaints, immediate symptomatic relief, and contributes to the general improvement of the patient.

Local Rest in Pulmonary Tuberculosis.—The efficacy of artificial pneumothorax in carefully selected cases is stressed by Dubrow as being a timely radical local rest in pulmonary tuberculosis, especially for the cases that are now seen in the sanatorium in greater numbers in the advanced stages and have often been neglected by the man in the field before admission or by the ultraconservative physician in the sanatorium.

Healed Generalized Miliary Tuberculosis.—A generalized miliary tuberculosis, involving at least the lungs, the lymph nodes and skin, and probably the liver and spleen and possibly the kidneys, which healed by absorption of the process rather than by calcification, is reported by Pierson.

Tuberculous Lymphadenitis Complicating Pulmonary Tuberculosis.—Three cases of acute tuberculous lymphadenitis complicating pulmonary tuberculosis are presented by Lathrop. In two of the cases the adenitis involved only the cervical nodes on one side; in the third case all palpable lymph nodes were involved. In none of the cases was the prognosis definitely altered by the presence of the complication.

Cutaneous Tuberculin Test in Pneumothorax Cases.—The value of the Moro skin test in the selection of pneumothorax patients was studied by Gammons in nine cases. Those patients with negative reaction before artificial pneumothorax was begun showed a negative reaction during and after the treatment. Those in whom the skin test was positive before treatment showed a more marked reaction after the lung was compressed. The negative skin-test patients have died or are expected to die, while the positive skin-test patients give all hopes of getting practically well.

Influence of Winter Climate on Pulmonary Tuberculosis.—Miner found the white death-rate from pulmonary tuberculosis in the United States registration states to be higher in those states with a mean January temperature between 30 and 40 F. than in colder or warmer regions. Possible factors affecting this result are discussed. No evidence is found to support the view that severe winter climates, or poor ventilation resulting from them, are important factors in the etiology of tuberculosis.

Inherited Immunity in Tuberculosis.—In a comparison and study of some 5,000 white patients and 1,700 colored patients treated under the same conditions, Carter found results obtained in the whites persistently better than results shown for the colored. Results shown in the mulatto negro are better than those shown in the black, but not so good as results in the white. The average age of those treated is greatest in the white and least in the black, while the mulatto occupies a middle ground. The same is true of the average age at death; namely, highest in the white and lowest in the black. The greatest incidence of tuberculosis under 30 years of age is found in the black, next in the mulatto and least in the white. More than 30, this order is reversed. Carter's conclusions are that this better resistance in both is due to an inherited immunity from ancestry that has accumulated that immunity through contact with tuberculosis. The white race transmitting to the mulatto a part of a stronger immunity accumulated through longer contact, this transmitted immunity plus that acquired by the mulatto gives him a better resistance to tuberculosis than the black, whose immunity has been accumulated entirely by him since being in contact with civilization, and almost entirely in the last seventy-five years, since freedom has thrown him in contact with crowded centers of population.

Experimental Resistance to Tuberculosis.—Intracardial injections of killed tubercle bacilli were practically without effect in producing skin sensitiveness in guinea-pigs. Guinea-pigs rendered tuberculin-sensitive by intracutaneous or subcutaneous injections of killed tubercle bacilli were not more resistant to infection than the control animals.

Archives of Dermatology and Syphilology, Chicago

13: 601-736 (May) 1926

Diseases of Oral Mucosa. J. A. Fordyce and G. M. MacKee, New York.—p. 601.
Superficial Yeast Infections of Skin and Its Appendages. B. B. Beeson and J. G. Church, Chicago.—p. 643.
Roentgen-Ray Treatment of Verruca Plantaris. J. C. Michael, Houston, Texas.—p. 658.
Dermatophytid: Complicating Dermatophytosis of Glabrous Skin. C. M. Williams, New York.—p. 661.
*Cultures from Skin of Apparently Normal Feet. T. Cornbleet, St. Louis.—p. 670.
*Association of Intestinal Indigestion with Various Dermatoses. H. J. Schwartz, New York—p. 672.
Multiple Sarcoid-Like Granulomas of Skin of Undetermined Nature. J. V. Klauder and F. D. Weidman, Philadelphia.—p. 675.

Cultures of Apparently Normal Feet.—Three out of 100 cultures made by Cornbleet from the fourth interdigital space of apparently normal feet yielded cultures of pathogenic fungi. The weight of present evidence is in favor of the pathogenicity of the fungi under consideration.

Association of Intestinal Indigestion and Dermatoses.—Basing his opinion on an analysis of more than 900 feces, Schwartz asserts that intestinal toxemia is an important etiologic factor in the production of many dermatoses, especially those of the inflammatory type.

Archives of Neurology and Psychiatry, Chicago

15: 537-673 (May) 1926

*Sensory Disturbances in Multiple Sclerosis: Their Significance in Diagnosis. O. Sittig, Prague, Czechoslovakia.—p. 537.
*Development of Meninges. S. C. Harvey and H. S. Burr, New Haven, Conn.—p. 545.
Vascular Lesions and Tumors of Brain: Difficulties in Differential Diagnosis. J. H. Globus and I. Strauss, New York.—p. 568.
Studies of Casts of Cerebral Ventricles. C. E. Locke, Jr., Cleveland.—p. 588.
Constant Relation Between Postures of Motile and Rigid States. W. M. Kraus, New York.—p. 597.
Radix Spinalis Trigemini and Principle of Usurpation. W. Freeman, Washington, D. C.—p. 607.
*Neurologic Symptoms in Osteitis Deformans (Paget's Disease). D. Gregg, Wellesley, Mass.—p. 613.

Sensory Disturbances in Multiple Sclerosis.—Not only are disturbances of sensibility of various kinds in multiple sclerosis frequent, but it appears that there is scarcely a case in which they do not occur. In four cases of the series of fourteen reported by Sittig, severe pains were manifest from time to time. In one, the disease began with sciatica on one side; in another, during the later course of the disease, severe pains appeared in an upper arm; in a third case, the disease began with severe rheumatoid pains in one side of the thorax and in the shoulders (in that case, there were also circumscribed pains between the thumb and first finger of one hand and in the outer side of the other thumb); in one case, neuralgia-like pains were felt in the shoulder.

Development of Meninges.—Harvey and Burr assert that the view of His and Kölliker, supported by Salvi, Sterzi, Weed and others, that the pachymeninx and the leptomeninx have a common origin in a primitive mesenchyme derived from a specific germ layer, the mesoderm, is incorrect. Certain ectodermal elements derived in large part from the neural crest are contributed to the mesenchyme and take part in the formation of the leptomeninx. These facts have been demonstrated experimentally in *Amblyostoma* and are confirmed by observations in the chick and pig embryo. Such origin suggests that the cells of the leptomeninx may have certain characteristics of their own, apparent in their reaction to injury and in the neoplasms arising from them.

Neurologic Symptoms in Osteitis Deformans.—Gregg holds the view that osteitis deformans is not rare. Long before the stage of gross deformity, it gives rise to neurologic symptoms such as pain and interference with the function of the nerves crowded by the proliferating bony structures. Osteitis deformans should be regarded as possible until ruled out by satisfactory roentgenologic examination in cases of pathologic fracture, neuritis or neuralgia of undetermined origin, and nerve disability. Early and definite diagnosis can be made by roentgenologic examination.

Boston Medical and Surgical Journal

194: 809-868 (May 6) 1926

*Coronary Occlusion in General Practice. S. F. McKeen, Brookline.—p. 809.
*Liver Function. VI. Quantitative Methods for Determining Cholesterol and Alcohol Soluble and Insoluble Bile Pigments of Duodenal Contents. C. W. McClure, Boston, and M. E. Huntsinger, Boston.—p. 812.
Massachusetts Tuberculosis League, 1925-1926. K. Emerson, Worcester.—p. 814.
Broadening of Tuberculosis Program. L. R. Williams, Albany, N. Y.—p. 816.
Measures to Combat High Mortality from Tuberculosis Between Fifteen and Forty-Four. E. O. Otis, Boston.—p. 821.
Expansion of Activities of Tuberculosis Associations. G. H. Bigelow, Boston.—p. 823.
Tuberculosis and Industry. McI. Woody, Springfield.—p. 825.
*Plan for Control of Contagious Diseases. W. A. Lane, Milton.—p. 827.
Progress in Study and Treatment of Cardiovascular Disease in 1925. T. D. Jones, University, Va., and H. B. Sprague, Boston.—p. 828.

Coronary Occlusion.—McKeen contends that coronary occlusion is not a rare disease in general practice. The diagnosis is generally easy, the treatment is plainly indicated, and the prognosis is fairly hopeful. From the standpoint of treatment, it is highly important to distinguish it from the different acute affections of the upper abdominal quadrant, and from those doubtful conditions often described in the newspapers as "acute indigestion" and "ptomaine poisoning." The picture of a typical case should be kept clearly in mind. A man in about middle life is suddenly stricken, perhaps in his sleep, with an intense substernal or epigastric pain that lasts and is not relieved by nitrites or even by ordinary doses of morphine. Signs of grave shock are present, anxious facies, ashy color, clammy skin and rapid, feeble pulse. The heart sounds may be irregular or ticktack in quality. A pericardial rub is sometimes found, and is then pathognomonic. The blood pressure is comparatively low, and, if previous readings are known, a decided drop has evidently occurred. The temperature will probably be found elevated, and the leukocytes are increased. A patient with such symptoms should be put to bed, and made as comfortable as possible with opiates. If the insult to the heart is not too great, he may survive the immediate shock. If he is kept absolutely quiet in bed for at least six weeks, with good nursing care, the infarct is given the best chance to heal, and the patient the best chance to recover. Moreover, if he has been a sufferer from chronic angina and hypertension, he may be relieved from both by his coronary occlusion.

Estimating Bile Pigments in Duodenal Contents.—McClure and Huntsinger describe two new methods for quantitating substances present in the bile fraction of duodenal contents. One of the methods relates to the determination of cholesterol and the other to a bile pigment.

Control of Contagious Disease.—Lane advocates uniformity of control, uniformity in certificates, uniformity of rules and methods of procedure as a means of lessening the spread of contagion.

Journal of Biological Chemistry, Baltimore

68: 1-323 (April) 1926

*Glutose: Biochemical Behavior. E. M. Benedict, H. D. Dakin and R. West, New York.—p. 1.
*Minimum Endogenous Nitrogen Metabolism. M. Smith, Boston.—p. 15.
Distribution of Unsaturated Fatty Acids in Tissues. I. Beef Heart Muscle. W. R. Bloor, Rochester, N. Y.—p. 33.
*Tetany. P. Drucker and F. Faber, Copenhagen.—p. 57.
Quantitative Study of Storage of Vitamin A. H. C. Sherman and M. L. Cammack, New York.—p. 69.
Comparison of Viscometric, Copper Reduction, Polariscopic, and Iodometric Methods for Measuring Rate of Hydrolysis of Starch and Dextrin by Aspergillus Oryzae. H. L. Maslow and W. C. Davison, Baltimore.—p. 75.
Effect of Hydrogen Ion Concentration on Starch-Liquefying Activity of Amylase of Aspergillus Oryzae. H. L. Maslow and W. C. Davison, Baltimore.—p. 83.
Effect of Hydrogen Ion Concentration on Dextrin-Liquefying Activity of Dextrinase of Aspergillus Oryzae. H. L. Maslow and W. C. Davison, Baltimore.—p. 95.
Is Cyanic Acid Intermediate Product of Action of Urease on Urea? J. B. Sumner, Ithaca, N. Y.—p. 101.
Adsorption of Nitrogen by Hemoglobin. J. B. Conant and N. D. Scott, Cambridge, Mass.—p. 107.
*Determination of Uric Acid in Blood. H. Brown, Philadelphia.—p. 123.
Enzyme Action. XXXIV. Actions of Some Ester-Hydrolyzing Enzymes at Different Temperatures. H. M. Noyes, I. Lorberblatt and K. G. Falk, New York.—p. 135.
Forms of Lactic Acid Produced by Pure and Mixed Cultures of Bacteria. C. S. Pederson and E. B. Fred, Madison, Wis.—p. 151.
Does Addition of Sodium Chloride Increase Value of Corn Ration for Growing Animals? H. H. Mitchell and G. G. Carman, Urbana, Ill.—p. 165.
Biologic Value of Nitrogen of Mixtures of Patent White Flour and Animal Foods. H. H. Mitchell and G. G. Carman, Urbana, Ill.—p. 183.
Alleged Interchangeability of Arginine and Histidine in Metabolism. W. C. Rose and G. J. Cox, Urbana, Ill.—p. 217.

Glutose.—Glutose, a nonfermentable ketohexose, obtained by the regulated action of alkali on glucose or fructose, has been investigated by Benedict, Dakin and West. The tolerance for glutose in the human organism is very low. With moderate doses it is excreted unchanged in the urine and by the bowel. The excretion of glucose in human diabetes was not influenced by the administration of glutose. Ketosis was variably affected by glutose. The respiratory quotient in man is not changed after glutose consumption. Insulin shock is not influenced by glutose. Methods for the preparation and estimation of glutose are described.

Endogenous Nitrogen Metabolism.—Smith endeavored to determine the absolute minimum total nitrogen excretion in the urine which could be attained in a normal adult whose caloric requirements were supplied in excess by carbohydrate and fat only. As small a quantity of protein as possible, without making the diet intolerable, was given. It was desired to prove that such a diet could be prolonged without harm to the subject. This expectation was fulfilled for a period of twenty-four days. The subject was in negative nitrogen balance throughout the experiment. The total nitrogen lost in the twenty-four days was 80.08 Gm.; the average daily loss was 3.34 Gm.

Tetany.—Drucker and Faber assert that infantile tetany cannot be explained by an "alkalosis" of the blood, since neither the p_H values are more alkaline nor the alkali reserve greater when the tetany is manifest than when it is cured. The theory that hypocalcemia, and hence tetany, is due to a change in the blood reaction in an alkaline direction cannot, therefore, be substantiated.

Determination of Uric Acid in Blood.—A direct method for determining uric acid in blood is described by Brown. The technic is simplified by permitting the uric acid reaction to take place at room temperature and thus eliminating heating in the water bath. Turbidity formation is greatly delayed, making possible the simultaneous determination of a larger number of bloods. Results are obtained which are nearer those of the Folin-Wu technic and, therefore, its use does not make necessary a new conception of higher "normal" uric acid values.

Journal of Bone and Joint Surgery, Boston

8: 247-458 (April) 1926

Training and Activities of Orthopedic Surgeon. R. Jones, Liverpool.—p. 247.
So-Called Infraction of Second Metatarsal Bone. A. H. Freiberg, Cincinnati.—p. 257.
*March Foot. M. Jansen, Leiden, Holland.—p. 262.
Fractures of Femur in Children. W. A. Clark, Pasadena, Calif.—p. 273.
*Renal Rickets. G. V. Ashcroft, Manchester, England.—p. 279.
*Artificial Limbs: Relation to Different Types of Amputation Stumps. A. B. LeMesurier, Toronto.—p. 292.
*Mechanical Employment of Sequestrum Fracture of Femur. F. H. Albee, New York.—p. 325.
*Theory as to Cause of Perthes' Disease Based on Roentgenologic Findings. J. M. Berry, Albany, N. Y.—p. 333.
*Danger in Use of Lipiodol in Diagnosis of Obstructive Lesions of Spinal Canal. W. Sharpe and C. A. Peterson, New York.—p. 348.
Classification of Arthritis. C. F. Painter, Boston.—p. 354.
Pott's Disease. A. Rollier, Leysin, Switzerland.—p. 360.
*Infective Arthritides. A. M. Forbes, Montreal.—p. 374.
*Spontaneous Fracture Following Bone Banding for Fractures. C. C. Garr, Lexington, Ky.—p. 377.
*Tendon Transplantations for Division of Extensor Tendon of Fingers. L. Mayer, New York.—p. 383.
*Disinfection of Septic Joints. F. J. Cotton, Boston.—p. 395.
*Nonsuppurative Osteomyelitis. M. Harbin, Cleveland.—p. 401.
*Congenital Malposition of Left Fibula. G. E. Bennett, Baltimore.—p. 405.
Anterior Tarsectomy (Ollier) in Tuberculosis of Anterior Tarsus. E. S. Geist, Minneapolis.—p. 410.
Traction Loop for Foot. J. L. Porter, Evanston, Ill.—p. 414.

Apparatus for Correction of Flexion Contracture of Knee. W. C. Campbell, Memphis, Tenn., and J. M. Mitchner, Houston, Texas.—p. 416.
Simple Removable Head Suspension Sling. P. Lewin, Chicago.—p. 422.
Clubfoot Wrench. D. R. Telson, New York.—p. 425.
St. Luke's Fracture Bed. R. L. Dresel, San Francisco.—p. 427.

March Foot.—March foot is the well known edematous swelling of the metatarsal region of the foot, which presents itself in persons who are made to walk beyond their strength. Jansen asserts that march foot is due to overfatigue in a weak foot, which causes spasm of the interosseous muscles, stasis of blood and lymph, swelling of the flexible parts, thickening of the periosteum, brittleness of the bone tissue of the metatarsals, and eventually, also fracture. March foot is to the midfoot what spastic flatfoot is to the lower leg. It is antepes contractus or spastic midfoot.

Renal Rickets.—Renal rickets is a condition in which bone deformity of the late rickets type is associated with renal disease. An investigation made by Ashcroft of this type of case has shown that 33 per cent have definite renal inefficiency, and 54 per cent reveal some renal defect. Sufficient evidence has been found to warrant the suggestion that the disease may be due to a fibrosis of the suprarenal gland.

Artificial Limbs.—The efficiency of any amputation stump is essentially the efficiency of that stump when fitted with an artificial limb; hence, LeMesurier says, every amputation should be done with the idea of leaving the stump that is most suitable for the particular type of limb that is eventually to be worn. The different kinds of artificial limbs, made by the Department of Soldiers' Civil Re-Establishment of Canada, are described by LeMesurier, who has been in charge of the limb-fitting clinic for five years.

Sequestrum Fracture of Femur.—Albee reports a case in which a sequestrum, 4½ inches (11.5 cm.) long and comprising nearly the entire thickness of the femur, was used as an extending influence in the restoration of the limb to increased length in a case of compound comminuted fracture with overriding, complicated by osteomyelitis. Furthermore, the case is a striking example of a large number of cases in which the quadriceps muscle has become fixed to the anterior lower surface of the shaft of the femur and thus either prevented flexion of the knee or seriously limited it, in which instance it is possible by plastic surgery to overcome this disabling affliction by extensive separation, by dissection, and by the implantation of a fascial and fat graft.

Cause of Perthes' Disease.—Berry advances the theory that Perthes' disease is due to defective epiphyseal tissue plus trauma and that trauma alone, if severe enough, may cause the disease.

Lipiodol in Spinal Theca Aggravates Symptoms.—It has been noted by Sharpe and Peterson that the presence of lipiodol in the spinal theca has resulted in the aggravation of clinical symptoms and signs. They urge caution regarding its use, especially as an early, routine, and confirmatory method of diagnosis. The fact that it is apparently nonabsorbable is in itself a potential danger.

Infective Arthritides.—Forbes is of the opinion that the intestinal tract is the probable source or portal of infection in the majority of cases of this disease.

Metal Bands on Bone Cause Fracture.—Garr calls attention to the fact that the metal bands used in the open reduction and fixation of fractures frequently lead to spontaneous fracture; hence, they should always be removed within a month, for by that time simple fixation will be sufficient and the nutrition of the bone will not be seriously impaired.

Tenoplasty on Extensors of Fingers.—Mayer asserts that traumatic division of the extensor tendons in which primary suture of the extensor tendons is contraindicated because of infection or extensive trauma to adjacent tissues can be treated successfully by tendon transplantation performed under suitable operative conditions. The extensor communis digitorum tendon of the index finger is the most suitable for transplantation purposes.

Disinfection of Septic Joints.—Cotton again describes his method of treating septic joints by incision, drainage and disinfection with physiologic sodium chloride solution with 1:15,000 mercuric chloride. On the basis of his excellent results, he urges the more widespread adoption of this method.

Nonsuppurative Osteomyelitis.—Harbin reports a case of nonsuppurative sclerosing osteomyelitis of the os calcis, in which there was involvement of the body of the bone together with the epiphysis.

Congenital Malposition of Left Fibula.—In Bennett's case, the lower end of the fibula was posterior and internal to the astragalus. There was also marked malformation of the astragalus. The fibula was dissected free and a transverse osteotomy done. The lower end of the fibula was removed. The astragalus and the internal malleolus were remodeled to bring the astragalus into a better position; the fibula was then transplanted to its normal position and fixed in this position by means of a living suture made of a strip of fascia lata, passing directly through the tibia and looping around the fibula, holding it in a good position with a very satisfactory anchorage. The patient made an uneventful recovery, and is able to bear a moderate amount of weight on the foot.

New York State Journal of Medicine, New York

26: 375-416 (May 1) 1926

*Survey of Tetanus and Treatment. M. Nicoll, Jr., Albany.—p. 379.
*Morbidity in Obstetrics Reduced by Use of Mercurochrome as Vaginal Antiseptic. H. W. Mayes, New York.—p. 384.
Case of Papilloma of Bladder. F. E. Dubois, New York.—p. 388.
Measles Year. C. Herrman, New York.—p. 390.
Legal Relation of Necropsy. K. S. Kennard, New York.—p. 390.
Differential Diagnosis of Pain in Right Lower Qradrant of Abdomen. H. A. Blaisdell, Jamestown.—p. 395.

Tetanus in New York.—Nicoll asserts that deaths from tetanus in the state of New York from 1907-1925 were only one-third the number that occurred eighteen years ago. This is attributed to no other cause than the more general use of tetanus antitoxin as a preventive. The fact that tetanus occasionally occurs after a single preventive dose of antitoxin strongly suggests the advisability of repeating the dose one or more times in all severe and extensive wounds, and possibly the advisability of administering twice the standard preventive dose at the first inoculation. An analysis of 262 cases of tetanus, in which the method of treatment is known, fails to show greater value of the intraspinal method over the intravenous alone or in combination. There seems to be some indication of the value of massive doses of antitoxin.

Mercurochrome as Vaginal Antiseptic.—According to data furnished by Mayes, the morbidity from childbirth has been reduced over 50 per cent by the use of a 4 per cent solution of mercurochrome as a vaginal antiseptic during labor and delivery. Vaginal cultures following the use of mercurochrome are sometimes negative for twenty-four or forty-eight hours and then show positive growths. The mercurochrome, although not actually destroying all the bacteria, has inhibited their growth for a period of time sufficient for them to be washed from the vagina by the lochia or absorbed by the maternal tissues. Repeated vaginal instillations have had no noticeable effect on either the mother or the baby. Mayes is convinced that if the use of mercurochrome were made compulsory before all vaginal examinations or instrumentations, the same as is now required for the prevention of ophthalmia neonatorum, there would be a drop in the annual death rate from puerperal fever.

Rhode Island Medical Journal, Providence

9: 65-82 (May) 1926

Infected Kidney. C. L. Deming, New Haven, Conn.—p. 65.
Measles Immunization. H. P. B. Jordon, Providence.—p. 71.

Tennessee State Medical Association Journal, Nashville

18: 281-308 (Feb.) 1926

Extra-Uterine Pregnancy. L. L. Sheddan, Knoxville.—p. 281.
Stricture of Ureter as Cause of Intractable Bladder Symptoms. G. R. Livermore, Memphis.—p. 288.
Plea for Education of Deaf Child. P. M. Farrington, Memphis.—p. 291.
Charity Clinics. R. B. Wood, Knoxville.—p. 295.
Indications for Simple and Radical Mastoid Operations. S. Lawwill, Chattanooga.—p. 298.
Undescended Testes. J. W. McClaren, Jackson.—p. 303.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

1: 815-854 (May 8 and 15) 1926

*Principles Involved in Prophylaxis and Therapy by Means of Vaccines. J. C. G. Ledingham.—p. 815.
*Control of Heart Disease in Childhood. M. F. Lowenfeld.—p. 817.
*Action of Intestinal Extracts. W. E. Dixon and J. H. Wadia.—p. 820.
*Two Cases of Huntington's Chorea. A. F. Grimbly and I. G. H. Wilson. —p. 820.
*Influence of Vermiform Appendix on Gynecologic Surgery. R. S. Statham.—p. 821.
*Radical Treatment of Trigeminal Neuralgia. B. Hughes.—p. 823.
*Carcinoma After Gastro-Enterostomy. D. R. Owen.—p. 825.
*Fatal Hemorrhage from Liver in Infant Five Days' Old. J. A. Berry. —p. 826.
*Recovery from Tubal Deafness Caused by Sarcoma. S. Lodge and W. O. Lodge.—p. 826.
*Congenital Occlusion of Duodenum. A. V. Magee.—p. 826.
Spontaneous Reduction of Acute Intussusception. D. J. Davies.—p. 827.
Cystic Degeneration of Uterine Fibroid with Partial Extrusion. W. Edmond.—p. 827.

Vaccine Therapy Empiric Practice.—The importance of the nonspecific element in vaccine therapy in its purely curative aspect is emphasized by Ledingham without ignoring the possible benefits that may accrue from repeated vaccine administration with a view to prophylaxis. He says that, though vaccines have been exploited in treatment for more than twenty years, the accumulated clinical data as to their efficacy or otherwise have not yet supplied that decisive link in the evidence which would raise vaccine therapy from the level of a purely empiric practice. Any scientific basis on which specific vaccine therapy may rest has not been enlarged and built on by decisive experiment on man or animals, and the consequence has been that vaccine therapy continues on its hapless way, exploiting now this now that, purely technical modification, but really in no way consolidating its position as the form of specific therapy which it has been believed to be.

Control of Heart Disease in Childhood.—Lowenfeld relates the activities of the children's heart clinic at the Royal Hospital for sick children at Glasgow since its institution in 1923. He says that any attempt to control the rheumatic infection in childhood must include provision for the acute, the convalescent, and the quiescent stages of the disease, and that, by the establishment of a clinic of the kind described, rheumatism in the children supervised can be controlled, and the incidence of carditis reduced to a minimum. In it an instrument of research is provided for increasing knowledge of the heart of the child and its response to the rheumatic toxin, and the correlation of records obtained in such clinics would throw very valuable light on the nature of the disease. A cardiac classification is proposed as a suitable basis for correlation.

Action of Intestinal Extracts.—Dixon and Wadia have prepared insulin from the intestinal mucous membrane of pigs by the Dudley method. The amount is considerably greater than that suggested by Ivy and Fisher. The authors do not offer information as to why this insulin body comes out in boiled intestinal extracts and not in other tissue extracts. They think, however, that the evidence suggests that pituitary secretion following the injection of intestinal extract is of the same nature as that which obtains after the injection of insulin.

Familial Huntington's Chorea.—The points that appear to be of interest in connection with the two fatal cases of Huntington's chorea occurring in two brothers reported by Grimbly and Wilson are: 1. The existence of a family history of insanity transmitted through the mother, three sons becoming insane, and two of these developing Huntington's chorea. 2. The difference in the early history of the two brothers subsequently affected with chorea. One had never been capable of regular employment; the other had a long record of army service prior to and during the first half of the war. The younger brother had a history of syphilis contracted abroad during military service in 1906, and his case was diagnosed, on admission, as general paralysis of the insane. The same brother exhibited no choreic movements at the time of his admission; whereas the other showed unmistakable evidence of chorea from the first. Regarding the difference in the age factor, the younger brother, who had led an active life, developed the disease at 34, while the older, who had spent the major part of his existence under institutional control, exhibited no symptoms until he was 43. As regards the morbid anatomy, both cases exhibited thickening of the pia-arachnoid, local atrophy in the frontal and frontoparietal areas, generalized cerebral and cerebellar softening, and a pronounced increase of cerebrospinal fluid with dilatation of the ventricles. In the case in which it was possible to carry out a detailed examination under the microscope, the pathologic changes consisted of chronic leptomeningitis, small round cell infiltration of the perivascular lymphatics, particularly definite in the caudate nucleus, and increased vascularity in the thalamus, but without any definite focus of acute encephalitis. There was also some degeneration of pyramidal cells, especially in the precentral gyrus.

Appendix and Gynecologic Disease.—Statham suggests that the appendix should be suspected and examined in all cases of pelvic peritonitis, and it should be removed if it is in any way diseased, to prevent further trouble at a later date. Even when the operation is performed for a condition that is not inflammatory, the appendix should be examined. Acute pyosalpinx is frequently complicated by acute appendicitis and vice versa. "Oophoritis" as a disease, and apart from pelvic peritonitis, should not be diagnosed. If at operation the ovaries are found to be merely enlarged and not adherent, then the appendix is most likely to be the cause of the patient's pelvic pain. In corroboration of this, the number of oophorectomies performed at the Royal Infirmary has fallen to a fourth of the number that were done before the war, and the results as to the cure of chronic pain have very greatly improved. Statham avers that it is just as well to remove a pelvic appendix whenever found, even if it appears quite healthy to the eye.

Treatment of Trigeminal Neuralgia.—In Hughes' opinion, section of the second and third divisions of the trifacial nerve is the operation of choice, as there have been no recurrences after four and five years, which rather supports the theory that the condition is sympathetic in origin, and that the afferent cell stations are situated in the sympathetic ganglions. An attempt should be made to save the motor element of the third division. Postoperative infection of the respiratory annexes and trophic changes in the mucosa have been conspicuous by their absence. Hughes asserts that the radical cure is correct both scientifically and practically, and is undoubtedly preferable to alcohol injection, which is but palliative and temporary.

Carcinoma Following Gastro-Enterostomy.—Owen reports a case of carcinoma following a gastro-enterostomy for ulcer, in which all the evidence appears to be against the theory that the ulcer, or ulceration around the gastro-enterostomy, was the cause of the carcinoma.

Fatal Liver Hemorrhage in Infant.—In Berry's case the source of the hemorrhage was a laceration of the anterior surface of the liver which probably occurred during birth, although the fact of labor having been easy and normal makes it rather difficult to understand how it occurred.

Sarcoma of Soft Palate Causes Deafness.—The case reported by Lodge and Lodge was one of removal from the soft palate of a sarcoma which resembled clinically the type of endothelioma found in this situation. As a result of relief of pressure on the eustachian tube, the patient recovered from unilateral deafness of eight years' standing.

Congenital Occlusion of Duodenum.—The first part of the duodenum in Magee's patient ended in a dilated, dome shaped diverticulum. The occluded end was firmly connected by a strong fibrous band to the head of the pancreas. The remainder of the duodenum (second and third parts) began, at the upper end, as a bulbous dilatation, into which, almost at right angles, ran the common bile duct. A firm, nodular mass in the wall of the intestine near the entrance of the duct proved, on histologic examination, to be a mass of lymphoid

tissue. A band, composed entirely of fibrous tissue, stretched from the occluded end of the first part of the duodenum to the head of the pancreas. Midway in its course it enveloped the bile duct and the remainder of the duodenum. The pancreatic duct, although not traced, did not enter the intestine in the region of the bile duct. The remaining organs in the body appeared normal.

Indian Medical Research Memoirs, Calcutta

4: 1-288 (Feb.) 1926

Study of Parasite of Indian Kala-Azar in Culture. S. R. Christophers, H. E. Shortt and P. J. Barraud.—p. 19.
Temperature in Relation to Culture of Herpetomonas Donovani on NNN Medium. S. R. Christophers, H. E. Shortt and P. J. Barraud. —p. 55.
Effect of Salt Solutions of Different Concentrations on Parasite of Indian Kala-Azar. S. R. Christophers, H. E. Shortt and P. J. Barraud. —p. 61.
Systemic Infection of Monkey (Macacus Rhesus) by Intradermal Inoculation of Spleen Puncture Material from Case of Indian Kala-Azar. H. E. Shortt and C. S. Swaminath.—p. 67.
Infection of Monkey (Macacus Rhesus) with Parasite of Indian Kala-Azar. E. D. W. Greig and S. R. Christophers.—p. 69.
Result of Intraperitoneal Inoculation of Mice with Cultures of Leishmania Donovani. S. R. Christophers, H. E. Shortt and P. J. Barrand. —p. 77.
Result of Feeding Mice with Cultures of Herpetomonas Donovani. S. R. Christophers, H. E. Shortt and P. J. Barrand.—p. 89.
Can Bedbug Transmit Indian Kala-Azar? H. E. Shortt and C. S. Swaminath.—p. 105.
Culicoides and Kala-Azar in Assam. S. R. Christophers, H. E. Shortt and P. J. Barraud.—p. 111.
Herpetomonas Found in Gut of Sandfly (Phlebotomus Argentipes), Fed on Kala-Azar Patients. R. Knowles, L. E. Napier and R. O. A. Smith. —p. 113.
Development of Parasite of Indian Kala-Azar in Sandfly. S. R. Christophers, H. E. Shortt and P. J. Barraud.—p. 123.
Feeding of Sandflies on Cases of Indian Kala-Azar. S. R. Christophers, H. E. Shortt and P. J. Barraud.—p. 127.
Development of Parasite of Indian Kala-Azar in Sandfly. S. R. Christophers, H. E. Shortt and P. J. Barraud.—p. 135.
Id. Refed Flies and Further Results of Feeding of Sandflies on Kala-Azar Cases. S. R. Christophers, H. E. Shortt and P. J. Barraud.—p. 141.
Feeding of Sandflies on Cases of Kala-Azar in Calcutta. L. E. Napier and R. O. A. Smith.—p. 147.
Feeding of Larvae of Sandflies on Cultures of Leishmania Donovani. S. R. Christophers, H. E. Shortt and P. J. Barraud.—p. 155.
Massive Infection of Pharynx of Sandfly with Herpetomonas Donovani. H. E. Shortt, P. J. Barraud and A. C. Chaighead.—p. 157.
Study of Bionomics of Sandfly in Calcutta. L. E. Napier and R. O. A. Smith.—p. 161.
Technic Employed in Breeding Sandfly in Assam. S. R. Christophers, H. E. Shortt and P. J. Barraud.—p. 173.
Anatomy of Sandfly. I. Head and Mouth Parts of Imago. S. R. Christophers, H. E. Shortt and P. J. Barraud.—p. 177.
Bodo Phlebotomi (Herpetomonas Phlebotomi) (Mackie, 1914). H. E. Shortt.—p. 205.
Sandfly Survey of Madras Town. P. J. Barraud.—p. 207.
Transmission of Kala-Azar in India. L. E. Napier.—p. 219.
Incidence of Kala-Azar on Pusa Estate. D. F. Michael.—p. 267.
Incidence of Kala-Azar in Parts of North Behar. D. F. Michael. —p. 277.
Kala-Azar in Ramnad District of Madras Presidency. T. S. Balasubramanian.—p. 287.

Journal of Laryngology and Otology, Edinburgh

41: 277-348 (May) 1926

Peroral Endoscopy: Historical Survey. I. Moore.—p. 277.
*Treatment of Cold by Homeopathic Doses of Iodine. D. M'Kenzie.—p. 299.
Simple Method of Determining the Counter-Rolling of Human Eye. C. E. Benjamins.—p. 300.
Prognosis of Middle Ear Suppuration in Children: Review of Five Hundred Cases. D. Guthrie.—p. 305.
Case of Double Vestibulotomy. H. Law and G. Bewley.—p. 316.
Surgical Emphysema of Head and Neck Following Esophagoscopy. H. L. Whale.—p. 320.

Iodine Treatment of "Cold."—In the treatment of acute nasal catarrh, M'Kenzie made use of a mixture consisting of 1 per cent pure iodine dissolved in water to which a little potassium iodide has been added to aid solution. Of this, 1 minim only (1/100 grain iodine), well diluted with water, is taken once in twenty-four hours. The effect, particularly if the first dose is taken in the early hours of the attack, is said to be prompt.

Journal of Physiology, London

61: 151-304 (April 23) 1926

Impulses Produced by Sensory Nerve Endings. E. D. Adrian and Y. Zotterman.—p. 151.
Action of Ions on Intra-Auricular Conduction in Tortoise. A. Seliskar. —p. 172.
Vasodilator Action of Histamine: Physiologic Significance. J. H. Burn and H. H. Dale.—p. 185.
Central and Reflex Regulation of Heart Rate. G. V. Anrep and H. N. Segall.—p. 215.
Method of Measuring Directly Total and Partial Pressures of Gases in Blood. E. P. Poulton, W. R. Spurrell and E. C. Warner.—p. 232.
Method for Study of Perfused Pancreas. B. P. Babkin and E. H. Starling.—p. 245.
Normal Carbon Dioxide and Oxygen Tensions in Tissues of Various Animals. J. A. Campbell.—p. 248.
Analysis of Initial Heat Production in Voluntary Muscle of Tortoise. W. Hartree.—p. 255.
Reaction to Drugs of Strips of Rabbit's Gastric Musculature. G. L. Brown and B. A. McSwiney.—p. 261.
Cardiovascular Reflexes. I. D. Daly and E. B. Verney.—p. 268.
Physiology of Plain Muscle. R. J. Brocklehurst.—p. 275.
Histamine Shock. O. Inchley.—p. 282.
Action of Alcohol on Conduction in Auricle of Tortoise. A. Seliskar. —p. 294.
Influence of Hydrogen Ion Concentration and of Anoxemia on Heart Volume. H. Gremels and E. H. Starling.—p. 297.

Journal of Tropical Medicine and Hygiene, London

8: 117-130 (April 15) 1926

*Whittingham (W) Strain of Artificially Induced Malaria. A. R. Grant and J. D. Silverston.—p. 117.
Vaccinia Variolae. M. Coplans.—p. 122.

Artificially Induced Malaria.—Grant and Silverston draw attention to some of the characteristics and behavior of a strain of malaria (Whittingham) which has now reached the fourth year of its existence and which still retains all its former potency and therapeutic value. In 1922, a patient with general paralysis was inoculated with blood from a patient who had contracted benign tertian malaria in India. From this host, a long chain of cases of general paralysis and tabes has been infected, with the result that during the last forty-two months the strain has been transmitted by direct subcutaneous inoculation through sixty generations, comprising more than 150 cases.

Lancet, London

1: 961-1020 (May 22) 1926

*Medical Aspects of Tobacco. H. Rolleston.—p. 961.
*Treatment of Cholecystitis and Prevention of Gallstones. A. F. Hurst. —p. 966.
Common Difficulties in Labor Met with in General Practice. H. R. Andrews.—p. 970.
*Use of Silver Filigree in Inguinal Hernia. P. P. Cole.—p. 974.
Toxic (Subdural) Meningeal Hemorrhage. A. G. Banks and A. M. N. Pringle.—p. 975.
*Unusual Cases of Puerperal Fever. R. Swyer.—p. 976.
Widespread Secondary Growths from Vulval Cancer. A. E. Chisholm. —p. 977.

Medical Aspects of Tobacco.—Rolleston reviews the history of tobacco smoking, the comparative effects of pipes, cigars and cigarets. The question of the addiction of tobacco smoking; the therapeutic uses of tobacco smoking; its bad effects on the nervous system; tobacco amblyopia; effects on the heart, blood pressure, alimentary canal and respiratory tract.

Prevention of Gallstone Formation.—The recognition and treatment of cholecystitis, Hurst says, is the best prophylaxis of gallstones. As it is impossible to tell when a gallstone is beginning to form, it is wise to give all patients with active cholecystitis a diet poor in cholesterol. In addition to cream and the yolk of eggs, brain, liver, sweetbread, kidneys and roe should be avoided, and all forms of animal fat should be taken in strict moderation. As many of the patients are obese, this diet has the further advantage of helping them to lose weight. If, however, the patient is thin, olive oil should be given before meals, especially if hyperchlorhydria is present, as it inhibits the flow of gastric juice.

Silver Filigree in Inguinal Hernia.—Cole has used a silver filigree in sixty cases of inguinal hernia, and has never had occasion to remove the filigree in any case.

Puerperal Fever with High Apyrexial Pulse Rate.—One of Swyer's patients developed a thrombosis of the inferior vena cava. A striking feature of the case was a persistently high pulse rate even during apyrexial periods, varying between 92 and 140 with an average of about 116. This patient died. The second case was one of very severe infection of the blood with a hemolytic streptococcus in which all the local lesions were confined to the right side of the body. The patient recovered.

Bulletin de l'Académie de Médecine, Paris

95: 425-447 (May 4) 1926

Test for Beta-Oxybutyric Acid in Diabetic Urine. H. Bierry and Gabriel-Moquet.—p. 432.
*Surgery in Ovaritis. J. Lhermitte and R. Dupont.—p. 435.
*Filtrable Tubercle Bacillus in Vaccination. A. Vaudremer.—p. 440.

Surgery in Sclerous plus Cystic Ovary.—Lhermitte and Dupont emphasize the association of pronounced nerve lesions in sclerotic and cystic degeneration of the ovary—"sclerocystic ovaritis." Partial resection of the gland cannot induce a permanent cure, since the appearance of new cysts as well as the surgical scars seem rather to favor recurrence. The only logical treatment is by severing the ovarian nerves; this appears to be the radical cure for this affection. They have applied this denervation of the ovary recently in nine cases; the results so far are encouraging.

Development of Filtrable Tubercle Bacillus and Vaccination Against Tuberculosis.—Vaudremer cultivated the tubercle bacillus in various mediums and temperatures. His research showed that the tuberculosis germ may develop in the form of a mycelium, outside of parasitic life. Certain elements of this mycelium pass through the filter, presenting isolated granules, which may grow even in unfavorable mediums and retain their pathogenic property. By passage through animals, the nonacid-resisting forms of the germ develop into the common tubercle bacillus. An emulsion of the nonacid-resisting form was used for vaccination of guinea-pigs. The animals were infected in three months, and reinfected six months later. They are still alive and healthy up to eight months, while the controls, for each group, died from one to three weeks after infection, and from four to nine weeks after reinfection.

Bulletins de la Société Médicale des Hôpitaux, Paris

50: 683-722 (April 30) 1926

*Vaccination Against Diphtheria. P. Lereboullet et al.—p. 683.
*Antitoxin and Anatoxin in Diphtheria. Lesné.—p. 689.
*Mass Vaccination with Anatoxin. C. Flandin.—p. 691.
*Urticaria and Alkali Reserve. Pasteur Vallery-Radot et al.—p. 692.
Cure of Gangrenous Abscess of Lung. Fiessinger and Olivier.—p. 693.
"Fatal Fixation Abscess." Netter.—p. 694.
*Pretuberculous Rheumatoid Purpura. P. Carnot et al.—p. 695.
Case of Macrogenetosomia. A. Léri and M. Leconte.—p. 699.
Therapeutic Meningeal Pneumoserosa. A. Tzanck and P. Chevallier.—p. 701.
Functioning in Kidney Sclerosis. M. Renaud and J. Roland.—p. 705.
Lipiodol in Examination of the Lung. J. Forestier.—p. 712.
A Slow Streptococcic Endocarditis. E. Achitouv.—p. 716.
Distomatosis in Man. Desage.—p. 720.

Anatoxin in Vaccination Against Diphtheria.—Lereboullet and his co-workers have vaccinated 1,414 children with diphtheria anatoxin. A dose of 0.5 cc. was given at the first injection, 1 cc. at the second and third, with three and one weeks intervals. Two injections induced immunity in 95 per cent; three in 100 per cent. The immunity still persists up to eight and twelve months. Only in a little over 3 per cent of the cases, the children had to interrupt their usual occupations on account of vaccinal reactions. The elective age for immunization is between 2 and 3; the receptivity is then maximal, while the reactions are minimal.

Anatoxin and Purified Antitoxin in Prevention and Treatment of Diphtheria.—Lesné rarely observed complications with the purified diphtheria antitoxin. A total of 100,000 units was given to a woman with a grave diphtheria. No phenomena of serum sickness occurred, although the patient had suffered previously with alternating attacks of asthma and urticaria. When haste is necessary, antitoxin should be used instead of anatoxin, especially in children under 3; immunization is more rapid with it.

Anatoxin in Vaccination Against Diphtheria.—Flandin injected 295 children with diphtheria anatoxin. There were no cases of diphtheria among the vaccinated within a year.

Urticaria and Alkali Reserve.—Pasteur Vallery-Radot, Blamoutier and Laudat found a low alkali reserve in two of seven cases of urticaria. Intravenous injection of 3 Gm. of sodium bicarbonate in 100 cc. of water prevented further attacks of urticaria, while daily ingestion of 15 or 20 Gm., for a week, was ineffectual. Of five patients with normal or exaggerated alkaline reserve, the influence of sodium bicarbonate was manifest only in one. The effect in this case may have been due to a humoral shock from the injected drug.

Rheumatoid Purpura Preceding Tuberculosis.—Carnot, Libert and Bariéty report the case of a man, aged 40, in whom rheumatoid purpura preceded by a few days a fatal acute pneumonia with tuberculous meningitis. Similar cases seem to be rare; more frequent are those in which purpura occurs during the course of tuberculosis.

Comptes Rendus de la Société de Biologie, Paris

94: 421-492 (Feb. 26) 1926. Partial Index

Magnesium in Growth of Mice. J. Leroy.—p. 431.
Putrefaction Microbes in Eggs. H. Tissier.—p. 446.
Cholesterol, Rickets and Ultraviolet Rays. R. Fabre and H. Simonnet.—p. 455.
*Hemochromogen in Acid or Base Medium. J. Roche.—p. 463.
Simplified Apparatus for Determination of Basal Metabolism. M. Soto and A. Torino.—p. 473.
American Cutaneous Leishmaniasis. C. Nicolle.—p. 476.
*Immunization with Tissue Grafts. R. Biglieri.—p. 477.
*Calcemia and Glycemia in Thyroid Disease. C. P. Waldorp and R. A. Trelles.—p. 488.
*Metabolism, Calcemia and Vagotonia in Acromegaly. C. P. Waldorp.—p. 492.

Combination of Hemochromogen with Oxygen and Carbon Monoxide.—Roche says his research has confirmed Bürker's theory that alkaline hematin retains for each gram-atom of iron a gram-molecule of oxygen. After having been reduced to hemochromogen, the alkaline hematin retains a quantity of carbon monoxide equivalent to that of the reduced oxygen.

Immunization with Tissues Containing Smallpox Virus.—Ovaries of rabbits with smallpox pustules, or even forty days after the appearance of the pustules (the animals consequently being immunized), were implanted in the peritoneum or beneath the skin of other rabbits. The latter animals were injected with smallpox virus thirteen days later, on the shaved skin. The inoculations proved negative; only a few pustules appeared in those injected subcutaneously. The inoculations were positive in the controls. Analogous experiments were made by Biglieri with skin fragments, testes and spleen. The data all testified that a minute dose of the virus, possibly attenuated, although incapable of inducing infection, is yet able to confer immunity.

Calcemia and Glycemia with Hyperthyroidism.—Waldorp and Trelles found the blood calcium reduced in twenty-six subjects with thyroid disease and increased basal metabolism. Under calcium treatment the calcium level rose. It seems that hypocalcemia may stimulate the involuntary nervous system. High glycemia was manifest in 50 per cent of eighteen patients.

Metabolism, Calcemia and Vagotonia in Acromegaly.—Waldorp noted an increased basal metabolism and a low calcemia in four cases of acromegaly. There was also pronounced vagotonia and eosinophilia. It is assumed that hypocalcemia may be responsible for the hyperexcitability of the vagus nerve.

94: 493-552 (March 5) 1926. Partial Index

Does Maize Contain a Vitamin Against Pellagra? Mouriquand.—p. 498.
The Cytology of the Peyton Rous Sarcoma and the Specific Substance. A. Borrel.—p. 500.
Artificial Pneumothorax and Maillard Coefficient. Monceaux.—p. 509.
Technic for Detection of Tubercle Bacilli. Lancelin et al.—p. 519.
*Tubercle Bacilli in Books for the Blind. Chatin and Rochaix.—p. 527.
*Cholesterol Content in Inanition. Mouriquand and Leulier.—p. 533.
*The Blood in Articular Rheumatism. J. Turriès.—p. 539.
Influence of Trypsin on Blood Sugar. J. W. Grott.

Tubercle Bacilli in Books for the Blind.—Chatin and Rochaix implanted in ten guinea-pigs fragments of pages from a braille book, used three months before by a tuberculous blind man. Three of the animals developed tuberculous lesions; one died after a year.

Inanition and Cholesterol of Blood and Organs.—Mouriquand and Leulier state that the disturbances found in starving guinea-pigs differed from those noted in avitaminosis C. The cholesterol content of the blood was increased, while that of the liver, spleen and lung was unchanged.

The Blood in Acute Articular Rheumatism.—Turriès examined the blood of eight patients with acute articular rheumatism and anemia. The blood corpuscles appeared to be normally resistant; no hemolysins were found.

Journal des Praticiens, Paris

40: 273-288 (April 24) 1926

*Ultraviolet Rays in Tuberculous Peritonitis. Duguet and Clavelin.—p. 273.
Exophthalmos and Tumor of the Orbit. Terrien.—p. 277.
Neoplasm of Carpal Tendon Sheath. Hartmann.—p. 280.

Ultraviolet Rays in Treatment of Tuberculous Peritonitis.—Duguet and Clavelin used the rays in eight patients with persisting tuberculous peritonitis of from two to six months' standing, and rebellious to medical or surgical treatment. A clinical cure occurred in seven cases; one patient died. Subsidence of fever and gain of weight were the immediate results. The local action was excellent in ascites, and was satisfactory in the fibrocaseous form. A mercury quartz lamp of 1,500 candle power was placed at 1 meter distance, the first exposure lasting five minutes. The sittings were gradually lengthened to an hour, and the distance reduced. The treatment consisted of at least twenty exposures.

Journal d'Urologie, Paris

21: 193-288 (March) 1926

Genito-Urinary Disturbances with Portal Hypertension. G. Petel—p. 193.
*Surgical Treatment of Nephritis. A. Damski.—p. 203.
Colon Bacillus in Urinary Disease. J. Fisch.—p. 227.
Renal Compensation with Ureteral Calculi. O. Mercier.—p. 238.

21: 289-384 (April) 1926

Congenital Dilatation of Ureters. R. Bouchard.—p. 289.
Fragment of Ureteral Catheter Removed by Hypogastric Incision. L. Strominger and J. Blum.—p. 347.

Surgical Treatment of Nephritis.—Damski has operated in twenty-four cases of kidney disease. A definite cure was induced in 40 per cent; improvement in 30 per cent. Four died after the operation. Comparing his twenty-four cases with 110 on record, he concludes that a radical operation, possibly nephrectomy, is advisable in unilateral hemorrhagic nephritis, while expectant treatment should be the rule in ascending nephritis, unless there is grave retention of urine or infection. Painful nephritis with hematuria should be treated surgically, decapsulation with nephropexy being the method of choice in nephroptosis. In cases with tuberculosis of one kidney and painful nephritis of the other, removal of the first kidney might be followed by decapsulation of the other. Decapsulation may induce persisting improvement in acute nephritis rebellious to medical treatment, but he never witnessed complete recovery. In chronic nephritis with cirrhosis and arterial hypertension, an operation may do harm rather than good.

Médecine, Paris

7: 405-480 (March) 1926

Diseases of Heart, Vessels, Blood and Kidneys in 1925. P. Ribierre.—p. 405.
Posttyphoid Heart Disease. G. Etienne.—p. 417.
Angina Pectoris and Aerophagy. C. Lian and G. T. Flora.—p. 420.
Tuberculous Myocarditis. L. Gallavardin and L. Gravier.—p. 431.
Extrasystoles of Nervous Origin. E. Donzelot.—p. 437.
Tachycardia from Heart Instability. E. Doumer.—p. 441.
Dissociation of Hemorrhagic Diatheses. Merklen and Wulf.—p. 444.
Erythroleukemic Syndromes. A. Clerc.—p. 449.
Renal Syphilis and Syphilitic Chronic Nephritis. P. Ribierre.—p. 454.
The Kidney in Amyloid Degeneration. M. Léon-Kindberg.—p. 459.

7: 481-560 (April) 1926

Obstetrics and Gynecology in 1925. L. Devraigne.—p. 485.
Mitral Lesions and Pregnancy. A. Couvelaire.—p. 492.
Torsion of Gravid Uterus. L. Demelin.—p. 494.
High and Low Cesarean Sections. C. Fournier.—p. 499.
Pubiotomy and Symphyseotomy in Obstetrical Therapy. V. Le Lorier—p. 503.
Pregnancy and Cancer. H. Vignes.—p. 510.
*Pernicious Vomiting. Lévy-Solal and J. Ravina.—p. 512.
Low Cesarean Section. L. Portes.—p. 517.
Hemorrhagic Metritis. A. Siredey.—p. 521.
Accumulation of Menstrual Blood in Douglas Pouch. Descomps.—p. 527.
Sterility and Insufflation of Fallopian Tube. E. Douay.—p. 533.
Inversion of the Uterus. H. Duclaux.—p. 540.
The Dangers of "Pacifiers." M. Duvoir.—p. 544.
D'Herelle's Bacteriophage. P. Handovsky. Supplement, pp. 1-48.

Anaphylactic Origin of Pernicious Vomiting.—Lévy-Solal and Ravina sustain the theory that anaphylactic phenomena may be a determining factor in the uncontrollable vomiting of pregnancy. In a case of therapeutic abortion, the ovum was used for preparation of a glycerin extract. Injection of this extract a few days after the abortion induced in the woman a positive skin reaction, and reappearance of the vomiting which had been promptly arrested by the operative intervention. Pilocarpine hydrochloride, given on the basis of this experience, induced remarkable results in several desperate cases in which all other measures for desensitization had failed.

Paris Médical

50: 405-444 (May 1) 1926

Endocrinology in 1926. F. Rathery and R. Kourilsky.—p. 405.
Sugar Regulation in Pregnant Women. M. Labbé and M. Chevki. p. 416.
Suprarenal Secretion of Epinephrine. Tournade.—p. 423.
Uricemia and Uric Acid Metabolism. Weil and Guillaumin.—p. 439.

50: 445-460 (May 8) 1926

Modern Tendencies in Histology. J. Jolly.—p. 445.
*Immunization of School Children Against Diphtheria. Harvier and Réquin.—p. 456.

Anatoxin Vaccination of School Children Against Diphtheria.—Harvier and Réquin vaccinated with diphtheria anatoxin 228 school children with a positive Schick test. Two subcutaneous injections of 0.5 and 1 cc. were given, three weeks apart. Control Schick tests showed immunity in 95.4 per cent after two injections, and in 64 per cent after one injection. Pronounced reactions from the injections were never noted in children under the age of 7. Therefore, regular vaccination with diphtheria anatoxin may be made in all children between 2 and 7, without a preliminary Schick test. The latter appears positive in 78 per cent of children of this age. Two injections should be followed by a control Schick test. It is superfluous when three injections have been given.

Presse Médicale, Paris

34: 561-576 (May 5) 1926

Recurring Mastoiditis. G. Portmann and H. Retrouvey.—p. 561.
Kinked Form of Bilocular Stomach. Macaigne and Baize.—p. 563.
Painful Forms of Occult Lumbosacral Spina Bifida. C. Roederer and F. Lagrot.—p. 565.

34: 577-592 (May 8) 1926

Precancerous Stomatitis with Vegetations. H. Gougerot.—p. 577.
*Ocular Syndrome with Pituitary Tumor. O. Hirsch.—p. 578.
*Iodine Treatment of Goiter. P. L. Marie.—p. 580.

Visual Disturbances with Pituitary Tumors.—Hirsch calls attention to the eye syndrome observed among his 100 surgical cases of pituitary tumor. The syndrome may not be accompanied by external changes. Impaired acuity of sight and contraction of the visual field are the chief symptoms. Temporal or bitemporal hemianopia was encountered in 84 per cent. Primary atrophy of the optic nerves is another characteristic symptom; it was found in 89 per cent. An adenoma of the anterior pituitary lobe seems to secrete a substance, inducing acromegaly. As long as the adenoma is benign, there are no visual disturbances. Malignant proliferation of the adenoma is usually accompanied by acromegaly, adiposogenital dystrophy or visual disturbances. Seven distinct pituitary syndromes are now known, pituitary dwarfism and pituitary dysostosis being the latest to be described.

Iodine in Treatment of Exophthalmic Goiter.—Marie emphasizes the tendency to consider exophthalmic and ordinary goiters as iodine deficiency diseases. The various types of the goiter are explained by a different response of the organism and of the thyroid to the deficiency. The results of iodine treatment in exophthalmic goiter testify only to a disproportion between the iodine content and the requirement of the organism at the moment. Iodine is beneficial when used before thyroidectomy. The efficacy of continued iodine treatment seems questionable.

Schweizerische medizinische Wochenschrift, Basel

56: 361-388 (April 24) 1926. Partial Index

Erythema and the Erythema Dose. A. Béclère.—p. 361.
*Roentgen-Ray Treatment of Sarcomas. M. Lüdin.—p. 366.
Deep Roentgen-Ray and Radium Treatment of Tumors. Gilbert.—p. 368.
Indirect Action in Radiotherapy. A. Rosselet.—p. 371.
Curietherapy for Epithelioma Grafted on Lupus. A. Rosselet.—p. 373.

*Transmission of Roentgen-Ray Activity. Hopf and Ludwig.—p. 373.
Radiotherapy in Compression of Spinal Cord. Moppert.—p. 376.
*Roentgen-Ray Examination of the Lung. R. Staehelin.—p. 376.
*Radiologic Sign in Acute Peritonitis. G. G. Moppert.—p. 381.

Recent Research and Experiences in Radiology.—This issue is devoted to the transactions of the Swiss Radiological Society at its meeting in Lucerne in March, 1925. Lüdin reported the cases of three patients in whom the diagnosis of lymphosarcoma, melanosarcoma or large round-cell sarcoma was verified by biopsy, who are alive and well from five years to eleven months since the irradiation. Hopf and Ludwig found that rats fed on food which had been exposed to roentgen rays received the effects of the rays. Staehelin pointed out that in croupous pneumonia the shadows of the exudate extend over a large area, while in bronchopneumonia they appear as roundish spots. Abscess and gangrene do not give characteristic pictures until large cavities have formed. The shadow cast by infarct varies widely in shape and intensity; it may be mistaken for a tumor, or may not appear at all. In chronic passive congestion the picture is typical, though often mistaken; it is described in detail. Primary carcinoma appears usually as a shadow proceeding from the hilum, primary sarcoma and lobe carcinoma as a solitary round shadow. Secondary tumors easily escape detection. Echinococcus cysts cast round or oval shadows, with a sharper and more regular outline than a tumor. Syphilis usually casts round shadows in the hilum region, radiating toward the periphery. The shadows cast in pneumonoconiosis are discussed at length.

Early Radiologic Sign in Acute Peritonitis.—Moppert's suspicion of incipient peritonitis in two cases was reenforced by discovery on roentgenoscopy of some gas bubbles in the right hypochondrium, close to the diaphragm. Immediate intervention saved both patients.

Archivio Italiano di Chirurgia, Bologna

15: 237-352 (March) 1926

*Pathogenesis of Peptic Ulcers. II. S. Gussio.—p. 237.
Treatment of Arteriovenous Fistulas. G. Giordano.—p. 293.
Prostatic Enlargement. M. Aresu.—p. 301.
*Implants of Embryonal Tissue. C. Sartori.—p. 339.

Pathogenesis of Secondary Jejunal Ulcer.—Gussio divided dogs' stomachs in the middle and sutured each stump completely, draining each half with a separate gastro-enterostomy. Patches of necrosis were most numerous in the jejunum loop connected with the pyloric half of the stomach, while erosions predominated in the loop connected with the cardial half. The dogs all died, too soon for the erosions to have developed into ulcers. He ascribes the deaths to toxic products generated in the tissues of the aboral half.

Implants of Embryonal Tissue.—Sartori implanted sections of eye tissue from rabbit embryos in the eyes of fourteen adult rabbits. Whether the implants retained their vitality or not at first, they all, after reaching a certain stage, succumbed to rapid involution and were completely resorbed.

Archivio Italiano di Urologia, Bologna

2: 417-516 (March) 1926

*Embryonal Origin of Kidney Tumors. C. Natali.—p. 417.
*Bladder-Ureter Surgery. P. Bastianelli.—p. 455.
*Cystic Degeneration of the Kidney. R. Broglio.—p. 472.
Diverticula of the Bladder. L. Zagni.—p. 490.
*Urinary Fistula. F. Virgilio.—p. 501.
*Misleading Cystoscopic Findings. G. Bloch.—p. 505.
Spontaneous Fragmentation of Bladder Calculus. E. Pellecchia.—p. 508.

Kidney Tumors.—Natali presents evidence to prove the embryonal origin of the majority of kidney tumors.

Bladder-Ureter Cancer.—The epithelioma in the bladder involved the left ureter, but there has been no recurrence during the four years since Bastianelli resected the tumor area into sound tissue through a median laparotomy. He refrained from cauterization as the tissues heal more smoothly without it.

Cystic Degeneration of the Kidney.—Broglio treated with Payr's ignipuncture two patients, with polycystic kidney. The kidney was infected in one and very painful in the other case. This conservative treatment was followed by a reduction in the size of the kidney and improved functioning, with disappearance of all subjective disturbances. There was general visceral ptosis in both women. After puncturing each cyst separately, he concluded with nephropexy.

Rebellious Urinary Fistulas.—As a last resort before nephrectomy, as the only means to cure a fistula that had persisted for a year with chronic suppuration, after nephrolithotomy, Virgilio treated the young man with a stock vaccine. In less than three months the fistula had healed completely, with no recurrence during the eight months to date.

Cystoscopic Pictures Simulating Tuberculosis of the Bladder.—Bloch warns that, with true tuberculous lesions in the bladder, the functioning is always impaired, and there is little or no relief from pain and discomfort with silver nitrate treatment. In a case described, the mouths of the ureters looked as if the kidneys were diseased, but the urine from each was normal, and the whole clinical picture subsided under mild local measures.

Clinica Medica Italiana, Milan

57: 1-88 (Feb.) 1926. Partial Index

*The Leukocyte Index. P. Berri and M. Weinberger.—p. 55.
*Influence of Trauma of the Thorax. G. Magliano.—p. 59.
Nitrogen Metabolism in Pulmonary Tuberculosis. G. Gherardini.—p. 67.

The Leukocyte Index.—Berri and Weinberger reiterate that the relative proportions of lymphocytes and polymorphonuclears are a valuable aid in differential diagnosis and as a warning of complications. In the healthy adult the range of the index P/L is from 1.9 to 3.3: in children under 12, the index is 1. Acute infectious diseases have a high index, and a sudden rise in the index in chronic cases warns of impending complications. Systematic recording of the leukocyte index may render the Arneth and the Schilling hemogram counts unnecessary, they think.

Influence of Trauma of the Thorax on the Onset of Pleuropulmonary Disease.—Magliano queries why pneumonia developed after a mild contusion of the chest in one case, while in a second similar case, the contusion induced merely a transient congestion. The accidental presence or absence of the pneumococcus in the air passages seems to be what determines the outcome.

Clinica Pediatrica, Modena

8: 129-192 (March) 1926

*The Cerebrospinal Fluid in Children. A. Baccichetti.—p. 129.
*Epidemic Encephalitis in Children. F. Zibordi.—p. 151.
First Year Weight Curve of Infants in Institutions. G. Roi.—p. 162.
*Ichthyosis. P. Fornara.—p. 173.

The Cerebrospinal Fluid in Children.—Baccichetti states that the reducing power of the fluid was always diminished in tuberculous and purulent meningitis, but was normal or increased in serous meningitis, epidemic encephalitis and acute poliomyelitis. The pressure varied but did not seem high with tumors as in adults.

Epidemic Encephalitis in Children.—Zibordi obtained a positive response to intradermal injection of influenza bacillus vaccine (and to no other vaccine) in the three children with epidemic encephalitis whose cases are described. Two recovered completely; the necropsy in the third case revealed the typical changes of the disease in adults.

Ichthyosis.—Fornara urges tentative treatment for syphilis, and thyroid treatment, as a routine measure in every case.

Pediatria, Naples

34: 449-504 (May 1) 1926

*Prevalence of Leishmaniasis. F. de Capua.—p. 449.
*Skin Test in Scarlet Fever and Measles. S. de Villa.—p. 467.
Death After Intraspinal Injection of Serum. P. Ritossa.—p. 478.
Fibrous Sarcoids. G. Lupattelli.—p. 485.

Prevalence of Leishmaniasis.—De Capua shows the increasing frequency of kala azar in Italy. The Naples pediatric clinic had 401 cases under observation during the last ten years. The whole of southern Italy is infected, especially along the coast. The mortality is less than 15 per cent.

Skin Test in Scarlet Fever and Measles.—De Villa injected the Cristina and Caronia cultures intracutaneously. He is especially gratified by the usually negative results in infants under 1 year of age.

Policlinico, Rome

33: 613-647 (May 3) 1926

*Dulness at the Apexes. L. Pezzotti.—p. 613.
Early Intervention in Nephrolithiasis. E. Pazzi.—p. 617.
Mechanism of Agglutination. N. Parise.—p. 620.

Dulness at the Apexes.—Pezzotti finds that repeated finger-finger percussion over an apex may produce in two or three minutes a slight dulness which disappears in about ten or fifteen minutes.

33: 649-683 (May 10) 1926

Plague, Rats and Fleas. A. Lustig.—p. 649.
*Stomach with Pulsating Vessels. G. Pieri.—p. 651.
Suture of Heart. G. Bufalini.—p. 653.

Stomach with Pulsating Vessels.—Pieri adds a third case of this syndrome to the two published recently by Delore. It manifests itself by repeated gastric hemorrhages while a laparotomy reveals only distention and marked pulsation of the blood vessels, especially on the greater curvature.

33: 225-280 (May 1) 1926. Medical Section

*Alcohol and the Liver. P. Albertoni.—p. 225.
Alimentary Glycemia. L. Condorelli.—p. 230.
*Pleurisy in Pneumothorax. P. Luridiana.—p. 255.
Treatment of Hookworm. G. Giglioli.—p. 263.

Alcohol and the Protective Function of the Liver.—Albertoni administered daily to dogs 3 Gm. of alcohol per kilogram of body weight, and 45 Gm. daily for three weeks to a volunteer who had been a total abstainer before. He found a higher glycemia, especially after administration of dextrose. Amyl alcohol had a still more pronounced action.

Pleurisy in Pneumothorax.—Luridiana regards pleurisy in artificial pneumothorax as a manifestation of allergy.

Riforma Medica, Naples

42: 385-408 (April 26) 1926

Objective Signs of Pain. C. Biondi.—p. 385.
Amebiasis in Sicily. P. Moretti.—p. 388.
*Serotherapy of Gas Gangrene. A. Pellegrini.—p. 391.
Bladder Calculus from Foreign Body. P. Manetta.—p. 404.

Serotherapy of Gas Gangrene.—Pellegrini had good results with preventive and even with therapeutic injections of various antiserums in cases of gas gangrene. In one patient, given an insufficient preventive dose, a small patch of local gangrene developed, but local injections of the antiserum cured it. This serotherapy deserves a wider use.

Rivista di Clinica Pediatrica, Florence

24: 289-360 (May 5) 1926

Intravaginalis Torsion of Testis. S. Marconi.—p. 289.
*Acetonemic Crises. P. Fornara.—p. 296.
Reducing Substances in Cerebrospinal Fluid. P. Bosio.—p. 311.

Acetonemic Crises.—Fornara reports five cases of nondiabetic acetonuria in infants. Somnolency as well as agitation or convulsions may be the symptoms. Association with cyclic vomiting is frequent. Administration of sodium bicarbonate helps almost immediately.

Archivos Arg. de Enf. del Ap. Digestivo, Buenos Aires

1: 399-604, 1926

Functional Pain in the Rectum. C. Bonorino Udaondo and L. I. Sanguinetti.—p. 399.
*Paraintestinal Inflammatory Tumors. R. Solé and J. Bacigalupo.—p. 412.
Basal Metabolism in Hyperthyroidism. Castex and Schteingart.—p. 430.
Tuberculous Peritonitis Simulating Gallbladder Disease. Martini.—p. 456.
Fistula After Gastro-Enterostomy. J. R. Goyena et al.—p. 473.
*Cure of Tuberculous Enteritis. P. Escudero and J. W. Tobias.—p. 500.
Eventration Through the Diaphragm. M. R. Castex et al.—p. 516.
Radiologic Study of Static Disturbances. Martini and Comas.—p. 535.

Amebic Appendicitis.—When a foreign body perforates the wall of the intestine, the inflammatory reaction develops outside the bowel; at least this was the sequence in Solé and Bacigalupo's four cases. In the one here described, the "foreign body" was an amebic focus which had evidently located deep in the appendix wall and had perforated outward. The abscess once formed had burrowed into the bowel, and amebas were found in the abscess and also in the adjoining bowel wall. The clinical picture had been that of ordinary appendicitis. Paraintestinal inflammatory tumors do not obstruct the bowel. Surgical measures should be supplemented by treatment of the parasites.

Tuberculous Enteritis.—The ulcerating tuberculous affection had induced anemia and diarrhea but there was no hemorrhage. The symptoms then subsided for a year, when they returned more severe, with continuous fever, night sweats and loss of 20 Kg. in weight. The tuberculin test was positive but no tubercle bacilli could be discovered. Under naphthalin treatment by the mouth a clinical cure was realized, with prompt gain in weight. The patient, a man, aged 46, was given from three to six tablespoonfuls of a palatable emulsion of naphthalin daily for two or three weeks, resuming it after a pause of the same length. Each spoonful represented 0.6 Gm. of naphthalin. Improvement was evident in a month and by the sixth month the clinical cure was complete, with gain of 18 Kg. in weight and full earning capacity restored.

Archivos Esp. de Enf. del Aparato Digestivo, Madrid

9: 129-192 (March) 1926

The Tetraiodophenolphthalein Test. Gallart Monés and Pinós.—p. 129.
*Traube Space Sign of Gastroptosis. J. Tarruella.—p. 146.
The Digestive Apparatus in Drug Addicts. Romualdo J. R. de Vera.—p. 158.

Sign of Congenital Gastroptosis.—Tarruella has noticed in what he calls virginal gastroptosis that the space of Traube was opaque and hard, as if full of a fluid or obstructed by a solid body. The semilunar opacity thus indicates an anatomic anomaly of the stomach.

Brazil-Medico, Rio de Janeiro

1: 111-124 (Feb. 27) 1926

*The Parathyroids and Spasmophilia. Salvio Mendonça.—p. 111.
Hemophilia and Hemophilic Syndromes. Americo Vallerio.—p. 113.
*The Poços de Caldas Sulphur Springs. Mario Mourão.—p. 115.

The Parathyroids and Spasmophilia.—In the three cases reported by Salvio Mendonça the parathyroid insufficiency and the consequent inability to retain calcium were unmistakably responsible for the spasmophilia. There were no further manifestations of the spasmophilia after the second day of parathyroid treatment. The children were from 5 months to 11 years old; in one with probable congenital syphilis, specific treatment had no effect until after the parathyroid treatment was under way.

The Mineral Waters of Brazil.—Mourão refers in particular to the hot sulphur springs at Poços de Caldas, which he calls the hydromineral miracle of Brazil. It lies at an altitude of 1,230 meters above sea level. He describes some remarkable instances of cures under the influence of the waters, in polyneuritis, sciatica, eczema, nephritis, etc.

Prensa Médica Argentina, Buenos Aires

12: 905-936 (Feb. 20) 1926

*Amebiasis in Argentina. M. R. Castex and D. Greenway.—p. 905.
Transverse Orthodiagraphic Roentgenography of the Heart. M. Miranda Gallino.—p. 920.

Treatment of Amebiasis.—Castex and Greenway here conclude their analysis of their experience with 479 patients with amebiasis, forming 23.6 per cent of the 2,023 whose stools have been examined for parasites. The infestation was pure in only ninety-two. The symptomatology is proteiform, and it may take months to dislodge the parasites. Each course of emetine should be followed by suspension for two or three months, and emetine polyneuritis is liable to develop when least expected. In one woman the amebiasis had induced intense pruritus for years; she was unable to tolerate emetine or bismuth, and efforts to give drugs by the rectum entailed severe inflammation in the colon. The infestation still persists after six or eight months of treatment. The patients must be made to realize that it takes a long time for the

ulcerations to heal, six to eight months in many cases, and that treatment has to be continued to the final and absolute extinction of the infestation, changing drugs at need.

Repertorio de Medicina y Cirugía, Bogota

17: 127-184 (Dec.) 1925

*The Hookworm Index. A. Duarte A.—p. 139.

Importance of the Hookworm Index.—Duarte extols the Stoll method as superior to others in simplicity and precision. He describes the technic and charts the findings with it in Colombia as applied on a large scale.

Revista del Círculo Médico de Córdoba

14: 1-68 (Feb.) 1926

Electron Correlation and Cancer. G. V. Stuckert.—p. 1.
*Acute Gland Tuberculosis. T. Castellano and Antenor Tey.—p. 12.
The Córdoba Milk Supply. Ramón E. López.—p. 20.
Trephining with Galvanocautery in Chronic Glaucoma. A. Urrets Zavalia. —p. 30.

Rapidly Fatal Hypertrophic Tuberculosis of Glands.—Castellano and Tey report a case in which the clinical picture suggested lymphogranulomatosis or Hodgkin's disease, but excision of one of the much enlarged glands confirmed the tuberculous nature of the disease. It ran a rapidly fatal course, the woman, aged 45, dying three months after the first discovery of enlargement of glands in the neck. They assume that it represents a primary infection; when secondary, it runs a more torpid and chronic course. The leukocyte count was between 12,000 and 14,000, and 81 to 84 per cent were neutrophils; the erythrocytes and hemoglobin did not vary much from normal.

Revista Esp. de Urología y Dermatología, Madrid

28: 59-116 (Feb.) 1926

*Cavernous Angioma. Ramon Castroviejo.—p. 59.
*Cure of Psoriasis. C. Serna.—p. 62.

Electrolysis in Treatment of Angiomas.—Castroviejo adds another to the list of his cases successfully treated with bipolar electrolysis with platinum needles. The cavernous angioma was on the upper eyelid, and had grown rapidly to the size of a cherry when the infant was brought to him. Five sittings were given, the current 10 milliamperes, ten minutes with the standard current and ten more with the current inverted. The small red line left was obliterated with the galvanocautery.

Cure of Psoriasis.—Serna reports the complete cure in four cases of psoriasis under intravenous injection of a 50 per cent solution of sodium salicylate, at two or three day intervals, never giving over more than 4 Gm. in one day, to a total of 20 or 30 Gm. In two other cases the salicylate did not seem to be effectual, so he injected emetine subcutaneously, at weekly intervals, to a total of 0.45 or 0.55 Gm. in twenty-nine and thirty-five days. The local measures were continued with both, as also organotherapy in the hypogenitalism type, and glucose in the seborrheic type. The pruritus subsided first and the pigmentation last.

Revista Médica de Barcelona

5: 225-319 (March) 1926. Partial Index

*Microcolorimeter Test for Urea. Ubaldo Cuffi.—p. 228.
Etiology and Treatment of Athrepsia. M. Torello Cendra.—p. 236.
Selective Partial Pneumothorax and Double Pneumothorax. C. Xalabarder. —p. 263.
*Biochemical Diagnosis of Pregnancy. F. Carreras.—p. 274.

Microtest for Urea in Blood and Urine.—Cuffi gives the details for the microcolorimeter test with urease which does not require more than 0.3 cc. of blood or urine, the blood oxalated, the urine diluted, each treated with urease, dealbuminized, filtered and nesslerized.

Biochemical Diagnosis of Pregnancy.—Carreras believes that the flocculation methods are proving reliable in the diagnosis of pregnancy. Interfereometry requires apparatus and complicated technic. The sedimentation test gives conflicting testimony. The Abderhalden procedure yielded dependable results in 90 per cent of the tests, as also the phlorhizin plus local anesthetic test in the first three months of the pregnancy. Later than this, the response is unreliable.

Semana Médica, Buenos Aires

1: 481-532 (March 11) 1926

*Treatment of Mumps. E. A. Molinelli.—p. 481.
*Embryotomy with Living Fetus. J. B. González.—p. 492.
Color Reaction in Primary Amine Cycle. J. A. Sánchez.—p. 498.
Bronchiectasia. R. C. Bizzozero.—p. 501.
Genital-Urinary Inflammation from Violent Muscular Exertion. A. A. Masciotra.—p. 515.
Main Factors in Chronic Rheumatism. E. Pietranera.—p. 517.
*Sterility in Women. R. Schwarcz and D. E. Centanaro.—p. 524.
Traumatic Rupture of Male Urethra. N. C. Torres.—p. 527.

Arsenicals in Treatment of Mumps.—Molinelli applied neoarsphenamine or other arsenical in 100 cases of mumps, as Kermorgant claims to have found a spirochete as the causal agent of the disease. The results were entirely negative; complications developed in the usual proportions, and no preventive or curative action was apparent.

Embryotomy with Living Fetus.—González remarks that although medical jurisprudence accepts embryotomy, yet it should be the last resort now that cesarean section proves successful in 80 per cent of cases such as were treated by embryotomy before Pasteur's day. In the graver cases, the favorable outcome with the Porro and Portes operations in more than 70 per cent should turn the scale against embryotomy.

Insufflation of the Tubes.—Schwarcz and Centanaro applied Rubin's pertubation test, insufflating air, in twenty-eight cases of sterility. In those in which the tubes were impermeable, there was a history of adnexitis in 70 per cent and of metritis in 25 per cent. One woman complained of pain for two or three days, and in another the adnexitis flared up anew. In two others a laparotomy within a fortnight revealed a blood cyst in one tube or a hematosalpinx, in addition to old chronic adnexitis. He queries whether the persufflation could have been responsible for these recent lesions.

1: 533-584 (March 18) 1926

Amebiasis in Argentina. F. L. Niño.—p. 533.
Sanocrysin Treatment of Tuberculosis. F. Etcheverry Boneo.—p. 560.
Cancer of the Breast and Gestation. J. C. Ahumada.—p. 567.
*Extraction of Needle from Deep Tissues. R. Faggioli.—p. 571.
Agonal Invagination in Children. Puente and Mathie.—p. 571.
Fish in the Campaign Against Malaria. M. Sella.—p. 576.

Extraction of Needle Deep in the Tissues.—Faggioli discovered a puncture in the stomach region of the 14 months infant, who was evidently suffering, and a linear resistance could be felt in the depths, suggesting that a pin or a needle had been forced into the tissues. It lay across the body, the tip toward the right, probably in the stomach. He buried his hands in the epigastrium, bringing the needle perpendicular to the spine, the tip toward the skin. His manipulations thus forced the tip up to and through the skin, where an assistant seized it with forceps. It proved to be a rusty needle, 4.5 cm. long, and the child was saved a laparotomy and has been in perfect health since.

Deutsche medizinische Wochenschrift, Berlin

52: 733-776 (April 30) 1926

*Meningococcus Sepsis. U. Friedemann and H. Deicher.—p. 733.
*Pathogenesis of Glomerular Nephritis. T. Fahr.—p. 735.
*Paratyphoid. Uhlenhuth and W. Seiffert.—p. 737. C'cn.
*Serology in Therapeutic Malaria. J. R. Mörch.—p. 740.
Reconstruction of the Prepuce. S. Ostrowski.—p. 742.
*Chondrodystrophy in Mother and Child. H. Baumm.—p. 743.
Gonorrhea in Boys. A. Alterthum.—p. 746.
*Tubes and Migration of Ovum. F. v. Mikulicz-Radecki.—p. 747.
Pregnancy Disturbances. B. Aschner.—p. 749.
Lower Uterine Segment. H. R. Schmidt.—p. 752.
Inertia of the Uterus. G. Haselhorst.—p. 753.
Retention of Placenta. R. Schröder.—p. 755.
Nitrates in Watered Milk. K. Süpfle.—p. 755.
Scandinavian Literature in 1925. H. Scholz.—p. 771.

Meningococcus Sepsis.—Friedemann and Deicher separate a special ("lenta") form from meningococcus sepsis. It begins with a rhinitis or bronchitis, and is characterized at first by a fever of the tertian type, but without real chills. Later on, the attacks become more frequent. The general condition is good, especially during intermissions. An exanthema resembling erythema nodosum is a constant feature. The fever may persist for months. The diagnosis is confirmed by cultivation of meningococci from the blood.

Prognosis is favorable. They point out that catarrhal diseases of the respiratory organs are quite frequently due to meningococci. One of the authors was infected by a patient and had three attacks of fever, exactly forty-eight hours apart, after an incubation of three days.

Pathogenesis of Glomerular Nephritis.—Fahr concludes that toxic swelling of the endothelial cells of glomeruli—not a spasm of the vas afferens—is the primary lesion in glomerular nephritis. It may progress into the vas afferens. He admits that there are more leukocytes in the efferent vessel than in the afferent, but this is due to the narrower wall of the former predisposing to stasis, not to a retrograde immigration of leukocytes.

Paratyphoid.—Uhlenhuth and Seiffert review the present status of paratyphoid infection and food poisoning. The causative agents may be differentiated by cultural characteristics—especially the formation of a viscid substance—and by agglutination.

Serology in Therapeutic Malaria.—Mörch believes that the positive Wassermann reaction provoked in general paralysis patients by the malaria treatment is nonspecific. The flocculation (sigma) reaction becomes only exceptionally positive by it.

Chondrodystrophy in Mother and Child.—Baumm delivered by suprapubic cesarean section a chondrodystrophic dwarf. The child presented the same malformation as the mother.

Tubes and Migration of Ovum.—Mikulicz-Radecki attributes to the movements of the fallopian tubes an important rôle in the transportation of the ovum to the uterus. Impairment of these movements by inflammation and its sequels or by a deficient blood supply may have an important bearing on the pathogenesis of extra-uterine pregnancy and sterility.

Klinische Wochenschrift, Berlin

5: 825-872 (May 7) 1926

*Intrapulmonary Pressure. M. Bürger.—p. 825. C'cn.
*Metabolism of Tumors. O. Warburg et al.—p. 829.
*Thirst Injury by Dehydration. H. Aron.—p. 832.
Gas Metabolism. R. Frank and R. Herzger.—p. 834.
*Serology of Genital Tumors. K. Volkmann.—p. 837.
Leduc's Currents. F. Scheminzky.—p. 839.
Cisterna Puncture. A. v. Sarbó.—p. 841.
The pH in Staining of Blood. H. Mommsen.—p. 844.
Heart Sequels of Typhus. M. M. Gubergritz.—p. 845.
The Carbon-Nitrogen Ratio. D. Ackermann.—p. 848.
*Calcium-Magnesium Ratio. Pincussen and Dimitrijević.—p. 849.
The Diaphragm and Birth Injury. M. Landsberger.—p. 850.
Diet in Constipation. O. Simon.—p. 851.
Birth Injury and Brain Disease. F. Wohlwill.—p. 853. C'cn.

Intrapulmonary Pressure.—Bürger made experiments on the effects of increased intrapulmonary pressure on the circulation. When the subjects made a prolonged expiration against a higher pressure, the arterial pressure usually fell, and some of them—especially those with small hearts—became unconscious. Convulsions from cerebral anemia occurred. In athletes with hypertrophied hearts the right ventricle was able to overcome the pressure exerted by the air and the circulation was maintained. He believes that the sudden emptying of the left heart due to a similar mechanism (Valsalva) is responsible for many instances of drowning in persons who are diving or swimming below the surface of the water. The sudden death occurring during defecation in persons with a weak heart may have a similar cause.

Metabolism of Tumors.—Warburg, Wind and Negelein investigated the problem of the possibility of killing tumor cells in the animal by lack of energy supply. Theoretically the tumor is more independent than normal tissue, since it can live either aerobically (by utilization of oxygen) or anaerobically—by fermentation, if there is a sufficient supply of dextrose. Yet there is hope in the fact that the supply of the tumor is less good than that of other tissues. The sugar concentration of the blood from the veins of animal tumors was on the average 57 per cent less than that of the arterial blood. A tumor takes about 70 mg. of dextrose from 100 cc. of blood—against 2-16 mg. removed by normal organs. Normal organs take in rather than give out lactic acid, if the oxygen supply is good. Tumors always produce lactic acid—about 46 mg. per hundred cubic centimeters of blood. These figures indicate at the same time that their tumors used about 66 per cent (46/70) of the dextrose for fermentation and only 24 per cent for oxidation. The amount of oxygen necessary for the oxidation of 24 mg. of dextrose is about the whole amount (18 cc.) contained in the 100 cc. of blood. Thus, the oxygen supply of the tumor is still poorer than the dextrose supply. The amount of fermentation is strongly influenced by the concentration of the dextrose, the optimum being at 0.2 per cent. Therefore, an increased glycemia enhances considerably the growth. Hypoglycemia alone—no matter how extreme—cannot kill the tumor, since it can get along on respiration alone. Respiration and fermentation of particles of tumors taken from animals kept for hours in insulin convulsions were almost normal. They tried to influence the tumors by keeping the animals for forty hours in gas mixtures containing only 5 per cent of oxygen and a little ammonia (to lower the acidosis). This would diminish the respiration of the tumor, while the fermentation is naturally low in those ("venous") parts, which are supplied by blood that had passed through other ("arterial") parts of the tumor. The success was greater than expected, since almost the whole of the tumor was killed, only a thin superficial layer remaining intact.

Thirst Injury by Dehydration.—Many alleged cases of pneumonia in infants are—according to Aron—only manifestations of hyperthermia from thirst. The rapid breathing is only one symptom of the lack of water. Dry wrinkled skin, depressed fontanels, dry red tongue, hoarse voice, and vomiting are the usual symptoms. A wrong diagnosis may entail the death of the child; administration of water or salt solution by the mouth or rectum saves it. Pyuria and albuminuria are symptoms and sequels of the dehydration.

Serology of Genital Tumors.—Volkmann tested 200 serums from women with genital tumors, using the interferometric reading of Abderhalden's reaction. He obtained positive results in 187 serums. The reaction seemed to be specific even for different types of tumors.

The Calcium: Magnesium Ratio.—Pincussen and Dimitrijević found a lowering of the calcium-magnesium ratio in the blood in ether-chloroform anesthesia.

Medizinische Klinik, Berlin

22: 677-714 (April 30) 1926

Treatment of Pulmonary Tuberculosis. C. Klieneberger.—p. 677.
*Hormone of Suprarenal Cortex. R. Stephan.—p. 679.
The Marathon Runner. P. Schenk and M. Wissemann.—p. 683. C'cn.
Artificial Abortion. F. Kermauner et al.—p. 686. C'cn.
Tabes in Two Sisters with Congenital Syphilis. J. Daube.—p. 687.
*Carbon-Nitrogen Ratio in Urine. E. H. Fishberg.—p. 689.
Carcinoma of Spermatic Vesicle. H. Kudlich.—p. 691.
Heterotypic Chordoma. L. Sommer.—p. 692.
"Negative Pressure in Sinusitis." Lehr.—p. 693.
Successful Removal of Spinal Cord Tumor. O. Maas.—p. 694.
*Gummas. F. Lesser.—p. 694.
Gonorrhea in the Female. H. Holzamer.—p. 697.
Recent Works on Digestive Tract. W. Wolff.—p. 701.
Goat Milk Anemia. B. de Rudder.—p. 702. C'cn.

Hormone of Suprarenal Cortex.—Stephan made extracts from the cortex of the suprarenals and tested their effects on pernicious anemia patients. The injection causes an almost immediate decrease in erythrocytes, which is followed in a few hours by an increase and then a return to the previous figures. The coagulation time, which is very short in pernicious anemia, is further shortened at first and then lengthened. The blood sugar follows a similar curve. He assumes that the increase in erythrocytes and decrease in the coagulation ferment is due to a blocking of the reticulo-endothelial cells by the hormone he believes to have extracted from the suprarenal cortex.

Carbon-Nitrogen Ratio in Urine.—Fishberg found a carbon-nitrogen ratio of 0.6-0.85 in the urine of healthy and sick children. The high ratio in breast-fed infants depends entirely on the alimentation. She found no signs of dysoxidative carbonuria in acetonuria, during a reducing treatment, nor in a cachectic child.

Gummas.—Lesser regards gummas as primary necrosis of the organ, due to proliferation in the blood vessels. Miliary

syphilomas with their good vascularization are almost the opposite of miliary tubercles. The spirochetes are chiefly parasites of vessels, not of tissues. The cellular reactions originating in the walls of the vessels are in the early period chiefly of infiltrative nature; in the late period, of the productive type.

Münchener medizinische Wochenschrift, Munich

73: 723-764 (April 30) 1926

Thoughts on Medicine. A. Bier.—p. 723. C'td.
*Sugar Mobilization After Insulin. E. F. Müller and W. F. Petersen. —p. 726.
Phosphorus Fractions of the Blood. H. Heinelt.—p. 729.
Relapsing Fever Treatment of General Paralysis. H. Hoff and L. Horn. —p. 731.
*The Babinski Phenomenon. O. Clauss.—p. 733.
Scapular Myalgia. A. Fürstenberg.—p. 734.
Heart Disease in Life Insurance. K. Grassmann.—p. 737.
Congenital Clubfoot. H. A. Staub.—p. 739.
Tonsillotome. A. Hartmann.—p. 740.
Sedimentation Test. O. H. Adler.—p. 741.
Medicolegal Obstetrics. M. Hofmeier.—p. 743.
The Artificial Leg Question. R. Pürckhauer.—p. 744.
Chronic Nephritis. Schlayer.—p. 746.

Sugar Mobilization After Insulin.—Müller and Petersen show that subcutaneous injection of insulin causes an almost immediate rise in blood sugar, due to its mobilization in the liver. It begins earlier than the main hypoglycemia phase, but persists as long as the insulin is circulating. Epinephrine seems to be an antagonist of insulin only when injected later. If epinephrine is given first, or at least simultaneously, the insulin hypoglycemia is more pronounced. Individual differences in the action of insulin are due to the readiness with which the liver liberates sugar. Insulin hypoglycemia is more pronounced in animals which respond to epinephrine with only a moderate hyperglycemia than in others. Insulin has three actions: one which increases the extrahepatic sugar metabolism by acting from the circulation; another, which promotes glycogen formation by a reflex (for instance after intracutaneous injections). A third action mobilizes the liver glycogen. While the promotion of glycogen fixation in the liver is beneficial, its mobilization seems to be undesirable. These two aspects of the action of insulin deserve clinical consideration.

The Babinski Phenomenon.—Clauss induces the dorsal flexion of the big toe by opposing the patient's active flexion of the knee. He mentions that Babinski presented his paper just thirty years ago.

Wiener klinische Wochenschrift, Vienna

39: 493-520 (April 29) 1926

*Permeability of Tissues. A. Fröhlich and E. Zak.—p. 493.
*Treatment of Epidemic Meningitis. F. Hamburger.—p. 497.
Surgical Tuberculosis. J. Rosner.—p. 498.
Cervicovaginal Fistulas. J. Sahler.—p. 500.
Dextrose Injections. K. Stejskal.—p. 502.
The Cerebrospinal Fluid. M. Schacherl.—p. 504.
Prevention of Oral Sepsis. M. Kraus.—p. 506.
Peritonsillar Abscesses. O. Mayer.—p. 508.
Chronic Gastritis. W. Zweig.—p. 509.
Radium Treatment of Cancer. G. Riehl. Supplement.—pp. 1-16.

Permeability of Tissues.—Fröhlich and Zak injected frogs with acid fuchsin or sodium ferrocyanate after previous injections of theophyllin. These animals developed spasms, and the presence of the former substances could be detected in the central nervous system, while the controls, that had received no theophyllin remained normal. Frogs and rabbits became by it quite sensitive to morphine. Tadpoles grow and undergo metamorphosis more rapidly in weak solutions of theophyllin. These and other effects of the drug may be explained by a general increase of the permeability of the tissues for small molecules, while the permeability for colloidal particles is reduced—thus causing an exaggeration of normal conditions. Pituitary extracts, epinephrine, calcium and cinchophen seem to have an opposite action.

Treatment of Epidemic Meningitis.—Hamburger withdraws all the cerebrospinal fluid gradually, substituting air for it at the same time (about 50-100 cc. in children). Then he raises the patient's pelvis and injects gradually serum, withdrawing at the same time the air, in portions of 10-20 cc. He reports a cure in three out of four cases.

Zentralblatt für Chirurgie, Leipzig

53: 977-1040 (April 17) 1926

The Cautery Iron Question. H. Hadenfeldt.—p. 978.
Relaxation of the Sphincter Ani. P. Esau.—p. 981.
Operative Treatment of Gastroptosis. W. Stemmler.—p. 984.
Autohemic Treatment of Infections of the Face. R. Hinze.—p. 987.
*The Dangers of Braun's Anastomosis. G. Kowtunowicz.—p. 993.
Methenamine or Catheterization? J. J. Stutzin.—p. 994.
Primary Wound Closure After Appendectomy. C. Strauch.—p. 995.
Errors and Dangers in Stomach Operations. K. H. Bauer.—p. 997.

The Dangers of Braun's Anastomosis.—The slit remaining between the mesentery of the intestinal loop used in the anastomosis and the anastomosis itself constitutes a potential danger. Kowtunowicz had a case in which nearly the entire small intestine had slipped through, with resultant strangulation and gangrene of the afferent limb of the anastomosis. Two or three stitches close the slit and obviate this danger.

Zentralblatt für Gynäkologie, Leipzig

50: 1042-1104 (April 17) 1926

*Bifid Uterus and Its Repair. P. Strassmann.—p. 1051.
Fuchs' Metroplasty of Cleft Uterus. Puppel.—p. 1059.
Delivery of Fetus with Gastroschisis and Spinal Curvature. B. Ottow. —p. 1059.
*Postclimacteric Bleeding and Ovarian Tumor. J. Schiffmann.—p. 1065.
*Vaccine Treatment of Gonorrhea. F. Wolff.—p. 1069.
*Vaginal Secretion Reaction and Gonorrhea. E. Stengel.—p. 1078.

Bifid Uterus and Extension of the Operation for Uniting the Horns.—Strassmann holds that the operation for uniting the two horns of the bifid uterus should be better known and more widely practiced. He sees no justification for tubectomy in these cases. He operated in seven cases of bilocular uterus, and in eleven cases of bifid uterus. In all, a septum was present in the vagina. The operation proved useful in a case of early, incomplete abortion in one of the halves of a double uterus with continued bleeding, by making complete evacuation possible. He performed the operation with success in cases with hematometra, hematocolpos, hematosalpinx, etc. By the abdominal route he operated in two cases of infected or inflamed adnexa; by the vaginal route in two cases with abscesses of the adnexa. He lost one of the latter patients from progressive infection. This was the only fatal case. Several of his patients had submitted to repeated laparotomies, but had been relieved of their symptoms only after repair of the uterine malformation. A number of his patients have borne living children since this operation.

Postclimacteric Bleeding and Ovarian Tumor.—Postclimacteric bleeding without a lesion of the uterus is an important early sign of ovarian tumor. A number of authors have pointed out a connection between granulosa cell tumors of the ovary and hypertrophic changes in the uterus and uterine mucosa. Schiffmann made microscopic studies of uterus and ovary in two cases of ovarian carcinoma with postclimacteric bleeding. The tumors were of the granulosa cell variety, and the uterine changes suggested ovarian hormonal influence. Since postclimacteric bleeding without lesion of the uterus suggests this type of ovarian carcinoma, it would seem a mistake to postpone operation until the appearance of a palpable tumor, for this class of tumors frequently remain small for a long time. Theoretically, they would seem to be suitable for roentgen-ray treatment, but the clinical basis for such an opinion is lacking.

Vaccine Treatment of Gonorrhea in Women.—Wolff's material consisted of 100 refractory cases. He injects intramuscularly freshly prepared vaccine, killed with one half of 1 per cent of phenol, and used within four or at most eight weeks. A dose of from five hundred millions of germs upward may safely be given twice a week. The reactions are less than with commercial vaccine, because endotoxins from decomposition of cocci are absent from the fresh product. The source of the organisms should be a clinically virulent case of acute gonorrhea or acute complications. In about forty cases he used living vaccine and found it superior in action to killed vaccine. There was no metastasis from its use. The inoculations are made in three or four wheals made in the subcutaneous tissue of the arm or thigh. The size of the dose is relatively unimportant. The reaction at the site of vaccination is stormy, a true phlegmon develops.

This passes in one to three days, leaving a hard infiltration at the site of the wheal. Vaccination must not be repeated before this infiltration is absorbed. If one repetition is not sufficient, there is not much hope in continuing. The abscesses contain living gonococci and no other organisms. Since the abscesses sometimes appear as late as two weeks after vaccination, it is evident that the gonococci remain alive for a considerable time. All cases but one of abscess formation at the site of vaccination were followed by clearing up of obstinate foci in the cervix. Urethral gonorrhea in women is not helped by vaccination, as its effects do not extend to the surface of the mucous membrane. Wolff had better success with autogenous than with heterogenous vaccines and found that the organisms should not be from too old strains. Patients greatly weakened by chronic disease should not receive vaccine treatment, but for other chronic cases showing no tendency toward a cure treatment with living vaccine is the therapy of choice.

Acid Reaction of the Vaginal Secretion and Gonorrhea.—Stengel made 123 examinations to test Danin, Opitz' and Rehn's claims of the value of this reaction in the diagnosis of gonorrhea. He concludes that absence of the acid reaction might justify a suspicion of gonorrhea; the reaction can be no more, however, than an auxiliary in diagnosis. Apparently it should be useful to indicate the progress of cure.

Zentralblatt für innere Medizin, Leipzig

47: 417-432 (May 1) 1926

*Amyloidosis. E. Letterer.—p. 417.

47: 433-456 (May 8) 1926

"Tuberculosis and the Practitioner." J. Ritter.—p. 434.

Nature and Origin of Amyloidosis.—Letterer caused amyloidosis in mice not only by casein and other proteins, but also by injection of peptone as well as of colloidal sulphur and selenium. Mice with amyloid had less globulins in the serum than those which had resisted the injections, and even a little less than normal animals. He believes that the increased loss of cell globulins is the first condition for amyloidosis. The second condition may be a fermentative, chemical or biologic precipitation of globulins.

Grèce Médicale, Athens

28: 1-8 (Feb.) 1926

Experimental and Bacteriologic Research on Ozena. G. Blanc and G. Pangalos.—p. 1.

*Action of Liquid Petrolatum in Digestive Tract. E. Contoléon and G. S. Joannidès.—p. 2.

Anaphylactic Reaction to Preventive Plague Antiserum. G. S. Joannidès. —p. 4.

Action of Liquid Petrolatum in the Digestive Tract.—Contoléon and Joannidès report from their experiments on dogs that liquid petrolatum reenforces peristalsis in the intestines and prevents absorption as it gets between the contents of the bowel and the wall. An excised loop of intestine, plunged into liquid petrolatum at once displays an intense peristalsis, the same as in cold water or in acetic acid or concentrated sodium sulphate. Fifteen minutes after five tablespoonfuls of liquid petrolatum had been poured into the stomach, a toxic dose of strychnine could be introduced into the stomach without any symptoms of strychnine poisoning, while the control dog had general tonic convulsions.

Acta Chirurgica Scandinavica, Stockholm

60: Supplement VII, pp. 1-258

*Surgical Treatment of Peptic Ulcer. G. Bohmansson.—p. 1.

Surgical Treatment of Gastric and Duodenal Ulcers.—Bohmansson gives thirty-three pages of bibliography and a full summary in English and French, with twenty-five plates. The work is based on 187 operative cases of peptic ulcer and twenty instances of bleeding ulcers treated by medical measures alone. In all the cases examined, he found evidence of gastritis independent of the gastric ulcer, and evidently preceding it. Sudden hemorrhage with chronic ulcer calls for operative intervention at once; with acute ulcer, only with vital indications. Postoperative digestion depends more on restoration of normal motor function than on the chemistry of the stomach. He emphasizes in particular the importance of sparing the circular muscle fibers, the vagus branches and the main vessels in the submucosa, which all run a parallel course in the stomach. These anatomic structures should be respected to maintain an approximately normal blood and nerve supply and motor function. This can be done best with the Billroth I.

Hospitalstidende, Copenhagen

69: 265-288 (March 25) 1926

*Functions of the Infundibulum-Tuber Region. G. Roussy.—p. 265.

Brooke's Cystic Adenoid Epithelioma. Finsen.—p. 282.

The Functions of the Infundibulotuberal Region in Relation to the Pituitary.—Roussy delivered this as the Rask-Ørsted lecture at Copenhagen, describing his personal research on the centers in this region and their influence on the metabolism of carbohydrates, water, fats, and probably on development of the genitals. Isenschmidt has demonstrated a center for heat production, and Lichtenstein centers for sweat secretion, vasoconstrictors and the bladder; Karplus and Kreide induced dilatation of the pupil with experimental lesions. The bulbar nuclei are controlled by the higher centers in the hypothalamus region. The question now is whether these centers represent the terminal station of organo-vegetative centers or whether they are under the control of the cortex, like the sensory-motor centers. The latter assumption would explain certain psychic-biologic phenomena, the unmistakable influence on the vegetative nervous system of certain emotions and mental processes. This opens a broad field for research which has scarcely been entered as yet.

Ugeskrift for Læger, Copenhagen

88: 363-388 (April 15) 1926

*Iodine and Exophthalmic Goiter. K. Petrén.—p. 363.

Indications for Mastoid Operation with Acute Otitis Media. O. Strandberg and A. Plum.—p. 369.

*Diagnosis of Brain Abscess. G. V. T. Borries.—p. 375.

*Anteflexion Impeding Delivery. K. Repholtz.—p. 378.

Orbital Abscess. B. Strandbygaard.—p. 379.

Iodine and Exophthalmic Goiter.—Petrén explains how the light thrown on this subject recently by American workers has revealed new problems as it solves old ones. As an instance of the life-saving action of iodine he describes the case of a man, aged 53, with extreme emaciation, distress and intense restlessness, day and night, of a type he had never before encountered; pulse 100-120, but no goiter, tremor or exophthalmos. The condition was so grave and progressing that cancer seemed probable, but under tentative iodine treatment the pulse dropped to 80 in a week, the basal metabolism from 75 or 60 above normal to 27.3 above and the weight progressively increased. The iodine was kept up for eleven months and displayed the same efficacy throughout, banishing the symptoms anew when they returned as the iodine was suspended or the dose (20 drops of a 5 per cent solution of Lugol's solution, three times a day) reduced. Roentgen exposures and ligation were applied as adjuvants after a time. When thyroidectomy finally became practicable; the thyroid showed the microscopic changes typical of exophthalmic goiter.

The Cerebrospinal Fluid with Otogenous Abscess in the Brain.—Borries' later experiences have confirmed his statements nine years ago in regard to the constant sterility and the clearing up of the previously turbid cerebrospinal fluid—although the other symptoms may continue a progressive course—when a meningitis is secondary to some suppurating brain lesion. This dissociation between the repeated lumbar puncture testimony and the course of the case was noted in all those in which the brain abscess was not discovered before death, and turbid fluid had been ascribed to primary meningitis.

Anteflexion of the Uterus as Hindrance to Delivery.—Repholtz pushes up the uterus with both hands, the procedure the reverse of Credé expression. As the labor pains return, the fundus has to be held in the corrected position. This may save hours of futile labor.